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FIELD MUSEUM OF NATURAL HISTORY

FOUNDED BY MARSHALL FIELD, 1893

PUBLICATION 318

REPORT SERIES

VOL. IX, No. 2

ANNUAL REPORT OF THE DIRECTOR

TO THE

BOARD OF TRUSTEES

FOR THE YEAR 1932

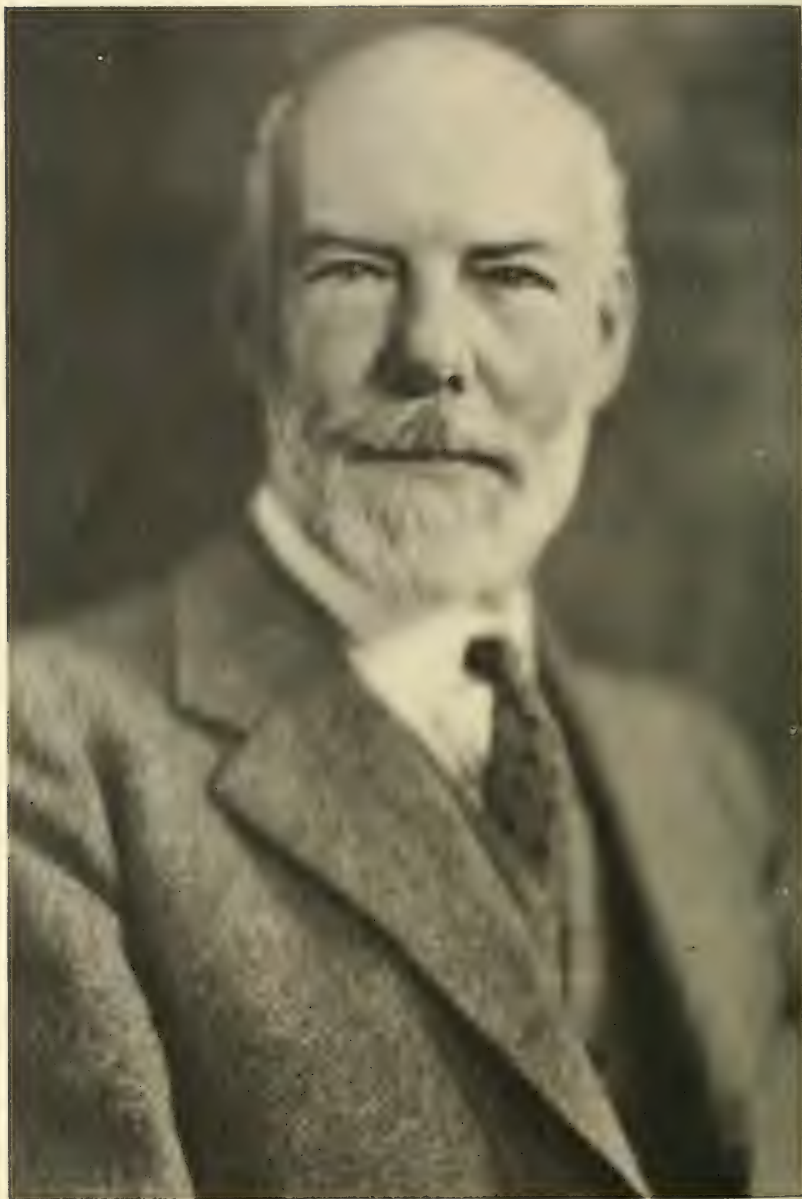


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JANUARY, 1933



ALBERT W. HARRIS

A Trustee of the Museum, Chairman of the Finance Committee, and a generous supporter
of the N. W. Harris Public School Extension

FIELD MUSEUM OF NATURAL HISTORY

FOUNDED BY MARSHALL FIELD, 1893

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JANUARY, 1933

BEQUESTS

Bequests to Field Museum of Natural History may be made in securities, money, books or collections. They may, if desired, take the form of a memorial to a person or cause, to be named by the giver. For those desirous of making bequests to the Museum, the following form is suggested:

FORM OF BEQUEST

I do hereby give and bequeath to Field Museum of Natural History of the City of Chicago, State of Illinois, _____

Cash contributions made within the taxable year to Field Museum of Natural History to an amount not in excess of 15 per cent of the taxpayer's net income are allowable as deductions in computing net income under Article 251 of Regulation 69 relating to the income tax under the Revenue Act of 1926.

Endowments may be made to the Museum with the provision that an annuity be paid to the patron during his or her lifetime. These annuities are tax-free and are guaranteed against fluctuation in amount.

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OFFICERS, TRUSTEES AND COMMITTEES, 1932

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MARTIN A. RYERSON*

Second Vice-President

ALBERT A. SPRAGUE

Third Vice-President

JAMES SIMPSON

Secretary

STEPHEN C. SIMMS

Treasurer and Assistant Secretary

SOLOMON A. SMITH

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JOHN P. WILSON

COMMITTEES

Executive.—Stanley Field, Albert W. Harris, William J. Chalmers, James Simpson, Albert A. Sprague, Marshall Field, Ernest R. Graham, Silas H. Strawn.

Finance.—Albert W. Harris, Martin A. Ryerson,* James Simpson, Solomon A. Smith, Frederick H. Rawson.

Building.—William J. Chalmers, Cyrus H. McCormick, Samuel Insull, Jr., Ernest R. Graham, William H. Mitchell.

Auditing.—James Simpson, George A. Richardson, Fred W. Sargent.

Pension.—Albert A. Sprague, William V. Kelley,* Solomon A. Smith.

* DECEASED

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GEORGE E. ADAMS*	1893-1917
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DANIEL H. BURNHAM*	1893-1894
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FRANK W. GUNSAULUS*	1893-1894, 1918-1921
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NORMAN WILLIAMS*	1894-1899
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FREDERICK J. V. SKIFF*	1902-1921
GEORGE F. PORTER*	1907-1916
RICHARD T. CRANE, JR.*	1908-1912, 1921-1931
JOHN BARTON PAYNE	1910-1911
CHAUNCEY KEEP*	1915-1929
HENRY FIELD*	1916-1917
WILLIAM WRIGLEY, JR.*	1919-1931
HARRY E. BYRAM	1921-1928
D. C. DAVIES*	1922-1928
CHARLES H. MARKHAM*	1924-1930

* DECEASED

FORMER OFFICERS

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EDWARD E. AYER*	1894-1898
HARLOW N. HIGINBOTHAM*	1898-1908

Second Vice-Presidents

NORMAN B. REAM*	1894-1902
MARSHALL FIELD, JR.*	1902-1905
STANLEY FIELD	1906-1908
WATSON F. BLAIR*	1909-1928

Third Vice-Presidents

ALBERT A. SPRAGUE	1921-1928
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Secretaries

RALPH METCALF	1894
GEORGE MANIERRE*	1894-1907
FREDERICK J. V. SKIFF*	1907-1921
D. C. DAVIES*	1921-1928

Treasurers

BYRON L. SMITH*	1894-1914
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Directors

FREDERICK J. V. SKIFF*	1893-1921
D. C. DAVIES*	1921-1928

*DECEASED

LIST OF STAFF

STEPHEN C. SIMMS, *Director*

DEPARTMENT OF ANTHROPOLOGY.—Berthold Laufer, *Curator*; A. L. Kroeber, *Research Associate in American Archaeology*. ASSISTANT CURATORS: Albert B. Lewis, *Melanesian Ethnology*; J. Eric Thompson, *Central and South American Archaeology*; Paul S. Martin, *North American Archaeology*; Wilfrid D. Hambly, *African Ethnology*; Henry Field, *Physical Anthropology*; T. George Allen, *Egyptian Archaeology*; John G. Prasuhn,* *Modeler*.

DEPARTMENT OF BOTANY.—B. E. Dahlgren, *Acting Curator*; Paul C. Standley, *Associate Curator of the Herbarium*; J. Francis Macbride, *Assistant Curator of Taxonomy*; Samuel J. Record, *Research Associate in Wood Technology*; Llewelyn Williams, *Assistant in Wood Technology*; Carl Neuberth, *Custodian of the Herbarium*.

DEPARTMENT OF GEOLOGY.—Oliver C. Farrington, *Curator*; Henry W. Nichols, *Associate Curator*; Elmer S. Riggs, *Associate Curator of Paleontology*; Sharat K. Roy, *Assistant Curator of Invertebrate Paleontology*; Bryan Patterson, *Assistant in Paleontology*.

DEPARTMENT OF ZOOLOGY.—Wilfred H. Osgood, *Curator*. MAMMALS: Colin C. Sanborn, *Assistant Curator*; Julius Friesser, C. J. Albrecht, A. G. Rueckert, *Taxidermists*. BIRDS: C. E. Hellmayr, *Associate Curator*; Rudyerd Boulton, *Assistant Curator*; Boardman Conover, *Research Associate*; R. Magoon Barnes, *Assistant Curator of Birds' Eggs*; Ashley Hine, *Taxidermist*. AMPHIBIANS AND REPTILES: Karl P. Schmidt, *Assistant Curator*; Leon L. Walters, *Taxidermist*. FISHES: Alfred C. Weed, *Assistant Curator*; Leon L. Pray, *Taxidermist*. INSECTS: William J. Gerhard, *Associate Curator*; Emil Liljeblad, *Assistant*. OSTEOLOGY: Edmond N. Gueret, *Assistant Curator*; Dwight Davis, *Assistant*. ARTIST: Charles A. Corwin.

N. W. HARRIS PUBLIC SCHOOL EXTENSION.—Stephen C. Simms, *Acting Curator*; A. B. Wolcott, *Assistant Curator*.

JAMES NELSON AND ANNA LOUISE RAYMOND FOUNDATION.—Margaret M. Cornell, *Chief*; Franklin C. Potter, June Work,* Miriam Wood, Gordon S. Pearsall,* *Guide-lecturers*.

LIBRARY.—Emily M. Wilcoxson, *Librarian*; Mary W. Baker, *Assistant Librarian*.

ADMINISTRATION.—Clifford C. Gregg, *Assistant to the Director*; Benjamin Bridge, *Auditor*; Henry F. Ditzel, *Registrar*; Elsie H. Thomas, *Recorder*—in charge of publication distribution; H. B. Harte, *Public Relations*; Pearle Bilinske, *Memberships*; J. L. Jones, *Purchasing Agent*.

PRINTING.—Dewey S. Dill, *in charge*; Lillian A. Ross, *Editor and Proofreader*.

PHOTOGRAPHY AND ILLUSTRATION.—C. H. Carpenter, *Photographer*; Carl F. Gronemann, *Illustrator*; A. A. Miller, *Photogravurist*.

MAINTENANCE.—John E. Glynn, *Superintendent*; W. H. Corning, *Chief Engineer*; W. E. Lake, *Assistant Engineer*.

*RESIGNED

ANNUAL REPORT OF THE DIRECTOR

1932

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1932.

The year 1932 stands out as one of acute economic and financial disturbance. Educational institutions, in common with all other public or quasi-public corporations, suffered a serious decline in the value of securities held in endowment funds, as well as a heavy decline in income from all sources.

The Museum started the year with a very much reduced budget, but as the year advanced it became apparent that expenditures must be further reduced in order to keep them in line with a declining income.

To accomplish this certain salaries were adjusted; then a horizontal reduction of 10 per cent was made in all salaries above \$100 per month. Unfortunately, it was necessary also to reduce the staff in many divisions of the Museum, and to reduce substantially, and in some cases discontinue, certain activities.

All expeditions were called home, except those financed by funds especially contributed, and economies were put in force throughout the institution.

The income in 1932 was \$267,000 less than in 1931, and expenses were reduced \$273,000; the item of general operation and maintenance alone was reduced \$198,000 (see financial statement on page 379).

In spite of this the institution has been able to give full service to the public, and, in fact, has extended its educational influence to a greater number of persons than in any previous year.

The number of visitors to the Museum during 1932 was 1,824,202, an increase of 308,666, as compared with 1931, or 20 per cent—this compares with an increase of 13.5 per cent in 1931 over 1930. The number of persons (chiefly children) reached by extra-mural educational activities conducted by the institution was approximately 700,000, making a total of some 2,500,000 persons who benefited directly from the Museum's operations. Even this figure does not take into consideration the incalculable number of people, probably running into millions, who are the recipients of knowledge dis-

seminated from the Museum in more indirect ways, such as circulation of its publications, leaflets and *Field Museum News*, reports of Museum activities published in the newspapers, radio broadcasting, motion picture newsreels, and other methods.

In the face of the increased attendance, paid admissions decreased substantially in 1931 and 1932, a fact undoubtedly attributable to the business depression. Paid admissions in 1930 were 160,924; in 1931—126,207; and in 1932—82,607, a decrease of $34\frac{1}{2}$ per cent in paid attendance during the last mentioned year.

It is noteworthy that only $4\frac{1}{2}$ per cent of the total number of visitors to the Museum during 1932 paid admission. The attendance on free days, plus the free admissions on pay days granted to Members, children, teachers, students, etc., amounted to 1,741,595 in 1932, or 226,055 more than the combined total of free and paid admissions during 1931. From these figures the conclusion seems to be fully justified that the Museum, in addition to its normal functions, is rendering special public service by providing something of interest for large numbers of people who for the time being are no longer able to afford other forms of recreation.

The highest attendance for any single day during 1932 occurred on Sunday, September 4, when 36,629 persons visited the Museum.

It is estimated that more than one-third of the visitors to the Museum were children. In addition to these, 181,672 children heard, in their classrooms and assemblies, natural history lessons (illustrated with stereopticon slides) presented by lecturers from the Museum sent to the schools by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures; and more than 500,000 children were given daily opportunities throughout the school year for study of the traveling natural history exhibits circulated by the Department of the N. W. Harris Public School Extension among all the public schools, and many private schools, community centers, and other institutions of Chicago. The schedule of deliveries and collections of these cases maintained by the Harris Extension provides each school with two of these cases every two weeks.

The Raymond Foundation, in addition to the extension lectures in the schools mentioned above, provided at the Museum itself programs and tours for 69,447 children (included in the general attendance figures for the Museum), thus making a total of 251,119 reached by the Foundation's various activities both inside and outside the building.

In recognition of his eminent services to the Museum, and his noteworthy contributions to anthropological knowledge about the Chinese, Dr. Davidson Black, Professor of Anatomy at Peking Union Medical College (Rockefeller Foundation), Peiping, China, was elected a Corresponding Member of the Museum. Dr. Black is noted for his research work in comparative anatomy and physical anthropology. During the visit to China of Miss Malvina Hoffman, the sculptor commissioned by Field Museum to make bronze figures, busts and heads of various racial types for Chauncey Keep Memorial Hall, Dr. Black cooperated wholeheartedly, placing excellent facilities for work at her disposal, and assisting her in obtaining living models of the types most desired.

In recognition of his gifts, which in 1932 reached a total of more than \$3,000 in value, the name of Dr. Earl E. Sherff was added to the list of Contributors to the Museum.

New Life Members of the Museum elected during 1932 are Mrs. C. T. Boynton and Mrs. Ogden Armour.

A list of Members in all classes will be found at the end of this Report (p. 397).

With keenest regret there must be recorded here the loss by death of two of the Museum's Trustees, Mr. William V. Kelley, and Mr. Martin A. Ryerson. The great services and benefactions the Museum received from these two men are indicated in the resolutions in their honor adopted after their deaths by their fellow Trustees.

At its meeting held on February 15 the Board of Trustees adopted the following resolution in honor of Mr. Kelley:

"It is with deep sorrow and the sense of a great loss that the Board of Trustees of Field Museum of Natural History does hereby record the death, on January 21, 1932, of its esteemed member, William V. Kelley, who was a true friend of science and of the Museum.

"The death of Mr. Kelley, whose rare personal charm endeared him to all, represents a keenly felt personal loss to the Trustees. To the institution it means the passing of one whose deep interest in its mission led him to give freely to it of his time and his thought, as well as in the form of many generous benefactions.

"Mr. Kelley will be remembered not only at Field Museum, but throughout the scientific world, for the increase in zoological knowledge which he made possible by financing so generously the William V. Kelley-Roosevelts Expedition to Eastern Asia for Field

Museum in 1928-29. This expedition, one of the greatest and most successful undertakings of its kind, obtained many specimens of rare animals in little-known regions, and its results, exemplified by highly valued additions to the Museum's exhibits and study collections, and by publications containing noteworthy contributions to the world's store of knowledge, make a perpetual monument to the memory of Mr. Kelley. It was in recognition of this that the Trustees dedicated one of the Museum halls—William V. Kelley Hall.

"Mr. Kelley's life was a splendid example of the rise of a man of ability and high principles from humble beginnings to a position of leadership. By the sheer force of his talents and his fidelity to his work he carved for himself an influential career in various industries and in banking.

"Field Museum was one of the principal beneficiaries of the intelligent public-spirited interest he manifested in civic affairs. Impressed with the work the Museum was accomplishing as an educative influence in the community, Mr. Kelley became a Life Member. As his interest grew his many gifts to the institution assumed large proportions, and the Trustees honored him by adding his name to the list of Benefactors. In further tribute to his valuable services, the Trustees elected him an Honorary Member, and in October, 1929, chose him as a fellow Trustee. In this capacity he continued to serve with the greatest zeal until the last days of his life. Still further evidence of his deep and genuine interest in and affection for the Museum was revealed when his will, in which he bequeathed \$50,000 to the institution, was probated.

"Therefore, be it resolved that this expression of our admiration and esteem for Mr. Kelley, and our grief at his passing and the loss of his counsel and companionship, be permanently preserved on the records of the Board.

"And, be it further resolved that our deep sympathy be conveyed to the members of his family in their bereavement, and that a copy of this resolution be sent to his widow."

At a meeting of the Board of Trustees held on November 21, the following resolution was adopted in honor of Mr. Ryerson:

"The Trustees of Field Museum of Natural History sorrowfully record the death of Martin A. Ryerson, a veteran fellow member of the Board, whose great and valuable services to the institution began at the time of its founding and continued throughout the years since. Mr. Ryerson died on August 11, 1932, at the age of

seventy-five. He was one of the Incorporators of Field Museum, a Trustee since it was organized in 1893, and First Vice-President since 1894. He rendered important services also as a member of the Executive Committee from 1894 to 1914, and as a member of the Finance Committee from 1901 to 1932. In addition, he was a Corporate Member, and became a Life Member about 1896.

"Mr. Ryerson was one of the Museum's staunchest friends and most ardent workers. The interest and enthusiasm he displayed at the time of the establishment of the institution never waned during all the subsequent years. He found time, despite his widespread business interests, to devote much thought and effort to the building up of a natural history institution which would fulfill the needs of Chicago, and of which the city could be proud. He was a man of remarkable intellect and insight, in whom extraordinary powers and abilities were matched to an exceptional degree by his gentleness, kindness, and personal charm. He had a natural inborn sympathy with the aims of a great public institution of this kind, and a keen understanding of the best ways of accomplishing them. His sage advice was of tremendous value in the deliberations of the Trustees. His gifts, both in money and in additions to the collections, placed his name high on the Museum's list of Contributors, while the many eminent services he rendered were given recognition by his election in 1922 as an Honorary Member.

"Mr. Ryerson's generosity toward the Museum was again revealed in his will which specified that upon the termination of certain life trusts, Field Museum is to share in his estate.

"Mr. Ryerson bore an enviable reputation both at home and abroad as a connoisseur of art, and his collections rank among the finest, testifying to his thorough knowledge and excellent judgment—a judgment highly respected by artists, art critics, and other collectors alike.

"Mr. Ryerson was highly esteemed in business, and was a leader in various important industrial and banking enterprises. He was a graduate in law of Harvard University, and had been signally honored by other universities. His public spirit was evidenced not only by his association with Field Museum, but also by his activity in connection with many other civic, educational, and charitable institutions of Chicago and other cities.

"Therefore, be it resolved that this expression of our respect and admiration for Mr. Ryerson, and our heartfelt grief at the loss

of his companionship and counsel, be spread upon the records of the Board:

“And be it further resolved that our deep sympathy be conveyed to his widow in her bereavement, and that a copy of this resolution be sent to her.”

Four other great friends of the Museum died during the year. Dr. George Frederick Kunz, a Patron and Corporate Member of the institution, died on June 29 in New York, at the age of seventy-six. He was an internationally known mineralogist and gem expert. Major John Coats, co-leader of two important Field Museum expeditions, and a Patron, Contributor, and Corporate Member of the Museum, died in August at his home in Ayrshire, Scotland. With Captain Harold A. White, of New York, he had jointly financed and led the Harold White-John Coats Abyssinian Expedition of Field Museum (1928-29), and the Harold White-John Coats Central African Expedition (1930-31), both of which obtained important zoological specimens for the Museum. Mr. Outram Bangs, Curator of Birds at the Museum of Comparative Zoology, Cambridge, Massachusetts, died September 22. Mr. Bangs made studies of the birds collected by the William V. Kelley-Roosevelts Expedition to Eastern Asia for Field Museum, and reports prepared by him have been published in the zoological publications of the Museum. Mrs. Edward E. Ayer, an Honorary Member of Field Museum, and one of its Contributors, died on December 18. She was the widow of the late Edward E. Ayer, who was the first President of the Museum, and a Trustee from the time of the institution's establishment until his death in 1927. Mrs. Ayer shared her husband's enthusiasm for the Museum and his interest in its welfare.

At the Annual Meeting of the Board of Trustees, held January 18, Mr. John P. Wilson and Mr. Sewell L. Avery were elected as Trustees to fill the vacancies caused by the death in 1931 of Mr. R. T. Crane, Jr., and the resignation in that year of Mr. William Wrigley, Jr., whose death in January, 1932, is regretfully recorded.

No action was taken during 1932 by the Trustees toward filling the vacancies caused by the deaths of Trustees Kelley and Ryerson, or the office of First Vice-President which had been held by Mr. Ryerson.

Among new exhibits completed and opened to public view during the year the most important is the African water-hole group in Carl E. Akeley Memorial Hall (Hall 22). This is the largest exhibit in Field Museum, and one of the largest animal groups in any museum.



THE LATE MARTIN A. RYERSON

A Trustee of the Museum from 1893, and First Vice-President from 1894
until his death on August 11, 1932

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It is 45 feet in breadth, 22 feet in height, and 22 feet in depth. In the group there are twenty-three mammals of various kinds and a number of birds, gathered about an exact reproduction of a water-hole. The animals shown include rhinoceroses, giraffes, elands, an oryx, zebras, a small herd of Grant's gazelles, several guinea fowl, and a tick bird. The foreground represents ground and vegetation typical of southern Abyssinia. A skillfully painted background gives an illusion of miles of plains stretching off in the distance with low arid mountains near the horizon. The specimens and data for the exhibit were obtained by the Harold White-John Coats Abyssinian Expedition of Field Museum (1928-29), which spent nearly a year in the field. The expedition was financed and led jointly by Captain Harold A. White, of New York, and the late Major John Coats, of Ayrshire, Scotland. Mr. George G. Carey, of Baltimore, was a member of the expedition, as was Taxidermist C. J. Albrecht, who prepared and mounted the specimens in the group. Staff Artist Charles A. Corwin painted the background.

A habitat group of animals obtained by the William V. Kelley-Roosevelts Expedition to Eastern Asia for Field Museum was installed in William V. Kelley Hall (Hall 17). The group includes two large specimens, male and female, of Asiatic water buffalo, three small hog deer, and specimens of white "cow heron." The animals were collected by Colonel Theodore Roosevelt and Mr. C. Suydam Cutting. The taxidermy is by Messrs. Julius Friesser and Arthur G. Rueckert of the Museum staff, and the background, representing the natural environment of the animals in southern Indo-China, was painted by Staff Artist Corwin.

A group of Alaskan caribou was installed in the Hall of American Mammal Habitat Groups (Hall 16), completing this hall, which now contains a series of twenty-four exhibits representing the principal large mammals of the New World. The caribou group includes five animals—two large bulls, two adult females, and a young male. The specimens were collected by Alaska Guides, Inc. The Museum is indebted to Mr. Bruce Thorne, of Chicago, vice-president of Alaska Guides, for his wholehearted cooperation, which made possible the acquisition of the animals. The group is indirectly a result of the Thorne-Graves-Field Museum Arctic Expedition in 1929 led jointly by Mr. Thorne and Mr. George Coe Graves II, of New York. Thanks are due also to the United States Biological Survey and the Alaska Game Commission for permits to collect the specimens. The animals were mounted by Taxidermist Friesser,

assisted by Taxidermist Rueckert and Assistant Taxidermist W. E. Eigsti. Artist Corwin painted the background, which represents a scene in the Rainy Pass region of Alaska where the animals were collected.

A fine specimen of the giant sable, stateliest of all antelopes, was installed in Carl E. Akeley Memorial Hall (Hall 22). It was presented to the Museum by Mr. Arthur S. Vernay, of New York and London, leader of the Vernay-Lang Kalahari Expedition in 1930. The animal is one of the best examples of the giant sable ever secured by any hunters, being in prime coat and having horns 61.5 inches in length or close to the record size of 64 inches. It was shot by Mr. Allan Chapman, a resident of Angola, Africa, who was engaged by Mr. Vernay to hunt it. Taxidermist Albrecht mounted it.

A cellulose-acetate reproduction of an American alligator, with a reconstructed nest broken open at one side to show the large hard-shelled eggs, was installed in Albert W. Harris Hall (Hall 18). It is the work of Taxidermist Leon L. Walters, who, with Mr. H. L. Stoddard, well-known naturalist, collected the original material in southern Georgia. Mr. Walters also prepared a number of reproductions of other reptiles and amphibians added to the exhibits in this hall during the year.

In Harris Hall, there were installed several important new fish exhibits, prepared by Taxidermist Leon L. Pray. The original specimens for these were chiefly gifts received during the year from Colonel Lewis S. Thompson, of Red Bank, New Jersey, and Captain Fred G. Saeger, of Miami, Florida. Especially interesting among these is the West Indian moray or tropical eel.

Among new bird exhibits added to the systematic collections in Hall 21 are a series of ostriches and their principal allies, and a case containing specimens of forty-nine species of parrots representing the principal forms from all parts of the tropics. These were prepared by Assistant Taxidermist John Moyer. A case of North American water birds was installed in the same hall by Taxidermist Ashley Hine.

Two new cases were installed in the systematic collection of mammals in Hall 15. One contains the principal animals of economic importance as fur bearers, and the other the most interesting and important members of the civet and mongoose family. Specimens in both cases were prepared by Taxidermist Rueckert. Many of the animals are from the collections of various expeditions of the

past few years, including the Cornelius Crane Pacific Expedition, William V. Kelley-Roosevelts Asiatic Expedition, C. Suydam Cutting Expedition to Sikkim, Vernay-Lang Kalahari Expedition, Marshall Field Chinese Expedition, Conover-Everard African Expedition, Field Museum-*Chicago Daily News* Abyssinian Expedition, Delacour Indo-Chinese Expedition, and the various Marshall Field Expeditions to South America.

A new collection of archaeological material of the old Bering Sea and Punuk groups of Eskimos, which is the only exhibit of this kind in the United States, was installed in Hall 10, devoted to archaeology and ethnology of the Northwest Coast and the Eskimos. This exhibit results from collections made by the John Borden-Field Museum Alaska-Arctic Expedition (1927), and from material received by exchange with the United States National Museum at Washington, D.C. The earliest known sites of the Punuk culture date back about 1,500 years.

With the exception of new material added to various collections during the course of reinstallation of a number of halls, and material installed in the still incomplete and unopened Hall of the Stone Age of the Old World, the only other new exhibit in the Department of Anthropology is a synoptic collection illustrating Maya art and industry. This has been placed in Stanley Field Hall. It comprises pieces from many parts of the Maya area. Much of the material was collected by the First, Second and Third Marshall Field Archaeological Expeditions to British Honduras, and the rest comes from various sources, notably by gifts from Mr. Allison V. Armour, Patron, Contributor, and former Trustee of the Museum.

The activities of the Plant Reproduction Laboratories were seriously curtailed as a measure of economy. Outstanding among new exhibits of the Department of Botany are a number of reproductions added to the collections in the Hall of Plant Life (Hall 29). They include branches of various South American trees and plants, such as arnatto, piquiá, coca, Brazil nut, and Paradise nut, prepared from material collected by the Marshall Field Botanical Expedition to the Amazon (1929); a branch of a tulip tree of the Indiana Dunes; and reproductions of a number of extinct plants. In Hall 25, devoted to palms and food plants, there were added an exhibit comprising reproductions of the principal fruit and vegetable foods of New World origin, and a reproduction of a peanut plant. Various new exhibits were added also to the economic botany collections in Hall 28, and to the Hall of Foreign Woods (Hall 27).

In Ernest R. Graham Hall (Hall 38) a group of fossil edentates was installed, one of which has the distinction of being the first skeleton of its kind discovered. This animal is a ground sloth called *Pronothrotherium*, hitherto known from fragments of skull and jaws only. The other animal represented in the group is a glyptodon called *Sclerocalyptus*. Both were collected by the Marshall Field Paleontological Expedition to Argentina and Bolivia (1926-27), led by Associate Curator Elmer S. Riggs. The specimens were prepared for exhibition under Mr. Riggs' supervision by Messrs. Phil C. Orr, Sven A. Dorf and James H. Quinn of the paleontological staff, and a background for the group was prepared by Mr. Orr.

Various other new fossil exhibits were added to Ernest R. Graham Hall. An unusually large and fine specimen of geode containing brilliant crystals was placed on exhibition in Hall 34. It was presented to the Museum by Mr. William J. Chalmers, of Chicago. Other new exhibits in the Department of Geology consist chiefly of material added to various halls in the course of extensive reinstallations.

In all Departments there were carried forward during the year extremely heavy programs of reinstallation. Simultaneously there was installed a great deal of new material to improve the reinstalled exhibits. Detailed accounts of this work will be found under the various Department headings in this Report. Among the halls in which important reinstallations were made are Hall 10, devoted to Northwest Coast and Eskimo ethnology; George T. and Frances Gaylord Smith Hall (Hall 24), containing Chinese archaeological and ethnological material; Joseph N. Field Hall (Hall A), devoted to the Melanesian and South Pacific collections; Mary D. Sturges Hall, containing North American archaeological exhibits; the Hall of Plant Life (Hall 29); the Hall of Foreign Woods (Hall 27); Hall 28, devoted to plant raw materials and products; Clarence Buckingham Hall (Hall 35), devoted to physical geology, rocks, and relief maps; Hall 36, containing the petroleum, coal, clay, and sand collections; Frederick J. V. Skiff Hall (Hall 37), containing ores, marbles, and alkalis; Ernest R. Graham Hall of Historical Geology (Hall 38); and Hall 19, containing the osteological exhibits of the Department of Zoology.

Much progress was made in the preparation and installation of two new halls still incomplete and not yet ready for opening to the public. In the Hall of the Stone Age of the Old World (Hall C) work has proceeded steadily. Mr. Frederick Blaschke, the sculptor

engaged to prepare the eight life-size group restorations of early man in various stages of cultural development, has completed many of the figures for these groups, and some have been installed already. Painted backgrounds for the groups have been prepared by Staff Artist Charles A. Corwin. In Hall O, which is to be devoted to marine life, the large undersea group resulting from the Field Museum-Williamson Undersea Expedition to the Bahamas (1929) was completed by Taxidermist Leon L. Pray, and the case containing it was glazed. The public cannot be admitted to this hall, however, until general reconstruction work in this part of the building has been completed.

Toward the end of 1932, the Marshall Field Zoological Expedition to China concluded two years of intensive collecting of the fauna of central and western China. Mr. Floyd T. Smith of New York was leader. The collections received from this expedition in 1932 total 6,868 specimens, and represent all branches of vertebrate zoology. Of special value for exhibition purposes are seven specimens of Chinese takin, which it is planned to use in a large habitat group. Mr. Smith obtained also a good specimen of the rare giant panda. The Museum is deeply indebted to officials of the Academia Sinica and the Metropolitan Museum of Natural History at Nanking for the many courtesies and excellent cooperation they extended to Mr. Smith, thus greatly aiding the accomplishment of his mission.

The Mandel-Field Museum Zoological Expedition to Venezuela, sponsored by Mr. Leon Mandel II, and Mr. Fred Mandel, Jr., of Chicago, reached Venezuela early in the year aboard Mr. Leon Mandel's yacht *Buccaneer*. Extensive collections of birds, mammals, reptiles, and amphibians were made along the Orinoco River and in the easternmost part of the Andes, where there is a distinctive mountain fauna. A large part of the collecting was done by Mr. Emmet R. Blake, a zoologist of the University of Pittsburgh, who accompanied the party. Mr. Blake alone obtained more than 800 bird specimens in five weeks of work in the Mount Turumiquiri region.

The Field Museum-Oxford University Joint Expedition to Mesopotamia concluded its tenth season of excavations on the site of the ancient city of Kish. A third palace building of the Sassanian period (about A.D. 400) was unearthed, and various other interesting discoveries in connection with both the Persian and the Sumerian periods were made. The expedition was again under the directorship of Professor Stephen Langdon, with Mr. L. C. Watelin as field director. It has been necessary for Field Museum to forego participa-

tion in the 1932-33 winter season of excavations at Kish, and Professor Langdon was so informed.

Field Museum shared in a zoological expedition to French Indo-China, led by Mr. Jean Delacour, well-known French zoologist. Funds for the Museum's participation had been provided by the late William V. Kelley. From little-known regions of the Province of Laos collections were received numbering more than 2,000 birds and 200 mammals. The Paris Museum of Natural History and the British Museum (Natural History) were other participants in this expedition.

The expedition to Asia and the South Pacific of Miss Malvina Hoffman was completed during 1932. Miss Hoffman is the sculptor commissioned to make the series of bronze figures, busts, and heads representing the principal living races of mankind for Chauncey Keep Memorial Hall. About two-thirds of her entire task is now finished. Before undertaking her work in the Orient, Miss Hoffman had made figures illustrating types of some of the peoples of Europe, Africa, and America. The journey concluded in 1932 had begun in the autumn of 1931 when she visited Hawaii, Japan, and China. This year Miss Hoffman's studies took her to the Philippines, Bali, Java, Singapore, Penang, the Malay Peninsula, Calcutta, Delhi, Jaipur, and Colombo. Everywhere local anthropologists kindly rendered her valuable assistance. Museums and hospitals were placed at her disposal for studying, measuring, photographing, and modeling the best available representatives of the racial types desired. Later, at her Paris studios, Miss Hoffman made the finished bronzes of the figures modeled in clay during her travels, and a large number of these are now at the Museum awaiting installation. Miss Hoffman was accompanied in her travels by Mr. Samuel B. Grimson, her husband, who acted as photographer; Miss Gretchen Greene, secretary and manager; and Mr. Jean de Marco, who made the plaster casts of the clay models.

An expedition to western Colorado to collect fossil vertebrates was conducted by Mr. Bryan Patterson, Assistant in Paleontology, accompanied by Mr. Thomas J. Newbill, Jr., of La Grange, Illinois. Specimens of rare fossil mammals, turtles, and crocodiles were obtained.

The work of photographing type specimens of plants in European herbaria, financed by the Rockefeller Foundation, was carried into its fourth year by Mr. J. Francis Macbride, Assistant Curator of Taxonomy. The number of negatives made since the work began now totals more than 23,000.

A large amount of accessory material, photographs, color notes, etc., required for the preparation of eight habitat groups of Asiatic mammals, was received as the result of an expedition conducted for Field Museum by the Bombay Natural History Society under a cooperative arrangement. The Museum is especially indebted to Sir Reginald Spence, Honorary Secretary of the society, and Mr. S. H. Prater, Curator of its museum, for the splendid spirit of friendship and scientific cooperation they manifested in this project. The expense of obtaining this material was financed by funds provided by the late William V. Kelley.

As a result of an expedition in Upper Burma sponsored by Mr. C. Suydam Cutting, of New York, the Museum received an important collection of plants for its Department of Botany, and a valuable collection of insects for its Department of Zoology. These were presented to the Museum by Mr. Cutting. Captain F. Kingdon Ward, noted British botanist, and Lord Cranbrook were the collectors. A collection of birds and mammals was also made for the Museum, and Mr. Cutting indicated it would be delivered early in 1933.

A number of excellent zoological specimens were presented to the Museum by Mr. John McLaren Simpson and Mr. A. Watson Armour III, as a result of a private hunting expedition they conducted in East Africa and India. During part of this hunt they were joined by Mr. James Simpson, who likewise presented specimens to the Museum.

Mr. Henry Field, Assistant Curator of Physical Anthropology, visited Europe during September and October making studies and collecting additional material for the Hall of the Stone Age of the Old World (Hall C).

The year's operations resulted in a deficit of \$2,025.56 which was met by a special contribution for the purpose made by President Stanley Field.

Of the notes payable, amounting to \$184,800, carried forward at the end of 1931 on account of money borrowed for previous years' deficits, \$28,700 was paid during 1932 with funds especially contributed for this purpose, leaving a balance still payable of \$156,100 as of December 31, 1932.

A number of benefactions both in money and material were received during the year, for which expressions of gratitude are herewith made. Acknowledgments of the gifts of funds follow:

Mr. Marshall Field contributed a total of \$96,000, of which \$64,000 was for use in meeting part of the general operating expenses of the Museum, and \$32,000 was for special expenses in connection with the preparation of Chauncey Keep Memorial Hall.

President Stanley Field contributed a total of \$35,787.98 to the Museum during 1932. This amount represents three contributions: the \$2,025.56 mentioned above to meet the budget deficit; \$28,662.42 towards liquidation of the building fund deficit; and \$5,100 towards the operating expenses of the Stanley Field Plant Reproduction Laboratories of the Museum.

From Mrs. E. Marshall Field there was received a gift of \$50,000 representing her annual contribution.

A contribution of \$18,000 was received from Mrs. Charles H. Schweppe, to defray the cost of the "Unity of Man" bronze group, which is to occupy the central position in Chauncey Keep Memorial Hall.

Mrs. James Nelson Raymond contributed \$3,000 toward the operating expenses of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures which she established in 1925, and to the support of which she has made further contributions ever since.

Mr. Frederick H. Rawson contributed \$3,000 toward the fund for preparation of the Hall of the Stone Age of the Old World (Hall C).

The American Friends of China, Chicago, contributed \$1,075 for the purchase of material to be added to the Chinese collections of the Museum.

Mr. Leon Mandel II and Mr. Fred Mandel, Jr., contributed funds covering all the expenses of the Mandel-Field Museum Zoological Expedition to Venezuela.

Mr. William J. Chalmers contributed funds for the purchase of additional specimens for the Museum's crystal collection.

Mr. Arthur M. Barnhart contributed funds for the purchase of important books needed for the Museum Library.

A bequest to the Museum of \$50,000 was provided in the will of the late William V. Kelley, Trustee of the institution, whose death during the year has been mentioned in the foregoing pages.

The death, noted elsewhere, of Mrs. Edward E. Ayer, released to the Museum the Edward E. Ayer Library Fund of \$50,000 provided for in the will of the late Edward E. Ayer, first President of the Museum, who died in 1927. Mrs. Ayer had had a life estate in this fund.



AFRICAN SCENE REPRESENTING A

Harold White-John Cuts

Taxidermy by Clarence J. Albrecht

Carl E. Akeley



WATER-HOLE IN SOUTHERN ABYSSINIA

Acan Expedition, 1929

Background by Charles A. Corwin

i Hall (Hall 22)

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The will of the late Martin A. Ryerson provides a bequest to the Museum whereby the institution will receive a substantial portion of his residuary estate.

Under the will of the late Mrs. Annie S. Coburn Field Museum will share in a trust fund of \$60,000, the income of which, after certain life interests have terminated, is to be divided equally between the Museum, the Art Institute of Chicago, and Harvard University. The will provides also for a similar distribution of Mrs. Coburn's residuary estate.

The South Park Commissioners turned over to the Museum \$112,926.45, the amount due the institution under the tax levy for this purpose authorized by the state legislature.

Some gifts of material for the various departmental collections presented during the year by friends of the Museum have already been mentioned in the foregoing pages in connection with their installation as exhibits, or their collection by expeditions. As usual, many other such gifts, some of them not yet placed on exhibition, and others intended for the study collections rather than for exhibition, have been received. It is appreciated that the donors often incur considerable expense and much trouble in obtaining material and forwarding it to the institution, and it is indeed most gratifying to note year after year the continuance of this widespread interest in the development and improvement of the Museum's collections. Details of the acquisitions of this nature received during the year will be found in the departmental sections of this Report under the Accessions heading in each Department, and also in the tabulated List of Accessions which begins on page 380.

The Board of Trustees of the Museum accepted an offer, made by the Board of Trustees of the University of Chicago, transferring to the Museum title to the entire herbarium of the university, consisting of 51,603 mounted plants. These plants have been on deposit in the Museum Herbarium for the past twenty-five years, but the Museum had not possessed permanent title to them previously. The collection was made chiefly by the late Dr. John M. Coulter, who was head of the university's department of botany for many years.

The annual spring and autumn courses of free illustrated lectures on science and travel for the general public were given in the James Simpson Theatre of the Museum, and the large attendance they attracted proved that their educational value is widely known. The programs given, and statistics on the attendance, will be found elsewhere in this Report.

The guide-lecture tours for adults given daily except Saturday and Sunday for the past several years were continued during 1932, but the schedule was reduced from two lectures a day to one, the morning lecture being eliminated. A wide variety of subjects was covered, and many persons availed themselves of the opportunities presented by this educational feature. As in the past, in addition to the regular public tours, special guide service for groups requesting it was made available upon application to the Director.

Colonel Theodore Roosevelt passed through Chicago on February 3 on his way to the Philippine Islands to assume the post of Governor-General to which he had been appointed by President Hoover. While in the city he visited Field Museum to see groups of animals, completed and under way, resulting from the William V. Kelley-Roosevelts Expedition to Eastern Asia which he led jointly with his brother, Mr. Kermit Roosevelt, and on which he was accompanied by Mr. C. Suydam Cutting.

Eighty-five members of the American Oriental Society, one of the oldest learned societies in the country, made a tour of the Museum's Oriental collections on March 30. They heard a lecture by Mr. Rowland Rathbun, Assistant Professor of the History of Architecture at Armour Institute, on the subject of the palaces discovered at Kish by the Field Museum-Oxford University Joint Expedition to Mesopotamia. Sir Henry Wellcome, founder of the Wellcome Foundation, famous research laboratories in London, visited the Museum on June 9 to study certain anthropological material. Many other distinguished visitors were entertained at the Museum during the year.

The Museum granted permission to the management of the Century of Progress Exposition to construct an official entrance to the exposition on a part of the eastern section of the Museum's restricted area. The exposition management will restore this area to its original condition after the close of the world's fair.

The Art Research Classes conducted at the Museum, in cooperation with the Art Institute of Chicago, have again moved steadily forward in the quality of the students' productions. Classes in painting, drawing and illustration find excellent reference material in the exhibits and study collections of the Museum. Among the students are some taking a teachers' training course. The number of students enrolled in the various classes is 31. Field Museum furnishes a classroom fitted out with working facilities, and the

Art Institute assigns a member of its faculty, Mr. John Gilbert Wilkins, as instructor.

In addition to the regular art research classes of advanced students which have been conducted for a number of years, there were inaugurated in 1932 several classes of younger children from the Saturday school of the Art Institute. About 130 children, ranging from fourth grade to high school students, are studying in these various Saturday classes. At Field Museum their efforts are concentrated chiefly on the drawing of animals, and studies in design work as exemplified in ethnological collections.

Several members of the Museum staff received honors from other institutions during the year. Mr. Karl P. Schmidt, Assistant Curator of Reptiles, was appointed to a fellowship of the John Simon Guggenheim Memorial Foundation in recognition of many valuable contributions to herpetology resulting from his researches for Field Museum. The fellowship carries with it a substantial grant of money with which Mr. Schmidt, on six months' leave of absence from the Museum, pursued his studies at European museums in association with leading foreign herpetologists.

Mr. Paul C. Standley, Associate Curator of the Herbarium, was appointed a member of the General Committee of Botanical Nomenclature, established by the Fifth International Botanical Congress held at Cambridge, England, in 1930. He is one of three members representing the republic of Mexico, and was designated as a representative of that country because of his numerous publications upon its flora.

Mr. Henry W. Nichols, Associate Curator of Geology, was appointed a member of the Mineral Industries Committee of the Western Society of Engineers.

Mr. Llewelyn Williams, Assistant in Wood Technology, was awarded the honor of election to membership in the International Association of Wood Anatomists.

Mr. C. Eliot Underdown, Assistant in Ornithology, died on February 21. Under provision of the Field Museum Employees' Pension Fund, insurance amounting to \$1,000 was paid to his mother.

Mr. John Duffy, who had been employed as a janitor since 1906, and who was placed on the pension payroll in 1931, died on November 10, 1932. Under provision of the Museum Employees' Pension Fund insurance amounting to \$2,500 was paid to his two daughters.

Because of failing health, Mr. Carl Neuberth, Custodian of the Herbarium since 1910, was retired in July. Payment of a pension to him, effective from January 1, 1933, was authorized.

Mr. Cleveland P. Grant, Acting Curator of the Department of the N. W. Harris Public School Extension, resigned as of January 31.

Mr. Robert L. Yule was employed as letterer for marking specimens in the Department of Anthropology, taking the place of Mr. S. S. Djou, who resigned.

One compositor was added to the force of the Division of Printing because of the needs of the Department of the N. W. Harris Public School Extension for many new labels.

The services of six carpenters were dispensed with as of April 30.

Mr. J. Eric Thompson, Assistant Curator of Central and South American Archaeology, was granted a leave of absence for five months so that he might engage in certain work in England for the Carnegie Institution of Washington, D.C. This leave will become effective February 22, 1933.

The usual careful attention was given to maintenance of the building, and various improvements were made, some of the more important of which are as follows:

The walks at the west entrance, used by those attending entertainments held in the James Simpson Theatre, were taken up and reset because of the effects of years of service. The motion picture screen in the Theatre was repainted in order to secure better results in the projection of films and slides.

By changes made in the lighting system employed in the exhibition cases containing habitat groups, and many other cases, a decided improvement in illumination was effected, together with a substantial economy in lighting costs. The interiors of all the hoods over the cases in Carl E. Akeley Memorial Hall (Hall 22), and Hall J, devoted to Egyptian archaeology, were painted to give better reflected light. The metal reflectors of the built-in cases in the Hall of American Mammal Habitat Groups (Hall 16), William V. Kelley Hall (Hall 17), and Ernest R. Graham Hall (Hall 38) were removed and replaced with white painted plaster board reflectors. These changes brought about a better diffusion of light, and they make possible a decrease in the wattage necessary, in some instances amounting to as much as 50 per cent. The combined saving achieved for all of the cases thus treated is 30 per cent of the wattage formerly used.

In the walls of the Hall of the Stone Age of the Old World (Hall C) thirty electrical outlets were installed. In the same hall wiring was

completed for eleven built-in exhibition cases and fifteen other cases. In George T. and Frances Gaylord Smith Hall (Hall 24) forty-eight cases were wired and installed.

In new installations, and in reinstallations and rearrangements of exhibits in various halls, the scientific Departments were given cooperation by the maintenance and engineering forces of the Museum. Forty-six exhibition cases were rebuilt or remodeled, refinished and reglazed, economy being effected in this work by the use of salvaged material. New glass was installed in three group cases. Twenty-six cases were cleaned and reinstalled. Groundwork frames were built for fourteen anthropological and zoological cases.

On the third and fourth floors 286 window sills were repaired, calked and painted, and thirty new window sills were installed on the third floor.

An insulated steel cabinet was built in the macerating room of the Department of Zoology to provide facilities for the cleaning of bones by the use of dermestids.

In various workrooms and storage rooms on the third floor 5,919 square feet of steel shelving were installed. Two metal-clad cabinets for the storage of birds were installed in a workroom (Room 76) of the Department of Zoology, and a cabinet for the storage of phonograph cylinders was provided for the study room (Room 55) of the Department of Anthropology.

A new oven was built in the photogravurist's shop in order to accommodate the larger sizes of plates which are now being used in some of the work produced.

The workroom used by the pottery mender in the Department of Anthropology, Room 38A, was painted and fitted with two work benches, two closets, a table for a gas stove, and 326 square feet of steel shelving.

A set of dampers of three zones was installed under one of the boilers and placed in operation January 31. As a result, there has been a saving of about 9 per cent in the amount of coal burned under this boiler.

All four of the boilers and their settings were given their usual overhauling by the engineering force, and a new filter bed was laid in one of the two filters.

During the seasons when heat was required steam was furnished from the Museum's plant to the John G. Shedd Aquarium under the contract in force since the establishment of the aquarium.

DEPARTMENT OF ANTHROPOLOGY

EXPEDITIONS AND RESEARCH

During the year three expeditions were operating in the interest of the Department of Anthropology.

Miss Malvina Hoffman, the sculptor commissioned to model life-size statues, busts, and heads of representative types of human races, completed her expedition to Asia in May of this year. Her work in Hawaii, Japan, and China was detailed in last year's Report (pp. 69-71). From China Miss Hoffman proceeded to the Philippines, Java, Bali, Singapore, and Penang, with several excursions into the jungles of the Malay Peninsula, and India. Among the numerous tribes inhabiting the Malay Archipelago the artist selected for life-size portrait heads a dancing girl from Bali, a typical lad and girl from Java, a Jakun (proto-Malay), a Sakai and a Semang (pygmies of tribes living in the densest jungles of the Malay Peninsula), a Dyak from Borneo, and a pure Malay. In order to track down the Jakun and Sakai, hundreds of miles had to be traversed by motor car over hills and into jungles. During this trip the artist's work had to be performed under most trying and primitive conditions.

Several weeks spent in India included sojourns in Calcutta, Delhi, Jaipur, and Colombo. The principal accomplishment of Miss Hoffman in India was the modeling of a strong Kashmiri with a fine head. In Calcutta she was fortunate enough to meet a Tibetan couple, traders in jewels from Lhasa. Both husband and wife were modeled. Also modeled were the heads of a Brahman from Benares, a high-caste Brahman woman from Bengal, and an Indo-Afghan from Kabul.

In addition to heads and life-size figures, the artist made numerous casts in negocoll of hands and feet of natives in characteristic poses. Among these are the hand of an aged native of India in the act of taking his food, and the hand of an Indian artist wielding his paint brush. As the Oriental manner of using the hand is very different from that of other peoples, these casts are of considerable scientific value.

Many life-size drawings were made in crayon or sanguine of a Samoan chief, a pure-blooded Papuan from British New Guinea, a youth from Bali, a Burmese from Rangoon, and a Tamil from Madras. Mr. Samuel B. Grimson, the sculptor's husband, took more than two thousand still pictures of native types, all carefully numbered, identified, and mounted in albums. He also made motion pictures of such subjects as Ainu people and their villages,

and dances in Bali, Java, and Burma. In all places visited a vast amount of information was collected for the benefit of anthropological research.

Miss Hoffman and her party sailed from Colombo on April 20, landing at Marseilles on May 3, whence she returned to her studio in Paris. She spent the summer completing in bronze the figures and heads modeled in clay during her journey. Altogether seventy-two subjects have been finished in bronze thus far. These include the group of three figures of heroic size symbolizing the unity of mankind, twenty-four life-size statues, twenty-five heads, and twenty busts.

The Field Museum-Oxford University Joint Expedition to Mesopotamia resumed operations at Kish. This was its tenth season, and Mr. L. C. Watelin was again the field director. Professor Stephen Langdon of Oxford University continued as in previous years as general director of the expedition, remaining in England where he conducted research in connection with the material excavated. A third palace building of the Sassanian period (about A.D. 400) was discovered. No stuccos like those found in the other palaces were unearthed, but it yielded a large quantity of pottery, both glazed and unglazed. An interesting feature of this palace is a large square reservoir in which water could be stored, equipped with pipes used for drainage. It may have served as a bathing pool. In the neighborhood of this palace a Persian private dwelling was found, and the conclusion now seems warranted that the Persians had an extensive settlement at Kish. This is indicated by ruins extending more than half a mile to the east. Three graves of the Sumerian period were excavated, yielding material similar to that in the Sumerian palace, especially pottery and copper pins. A remarkable object found is an ancient vanity case. Work was resumed also on the ruins of Sumerian buildings.

While not so remarkable for the discovery of other objects, this season resulted in a rich harvest of inscribed tablets which have been sent to Professor Langdon for translation. A large number of additional stuccos, chiefly fragmentary, from the Sassanian palaces, and eighteen pieces of Sassanian pottery were received this year. Also obtained were pottery vessels, clay figurines, beads, bronze implements, and skulls of the Sumerian period.

Professor Rowland Rathbun, who last year began a study of the plan of the Sassanian Palaces I and II, completed measured drawings of each of the patterns of the stucco reliefs. These studies were

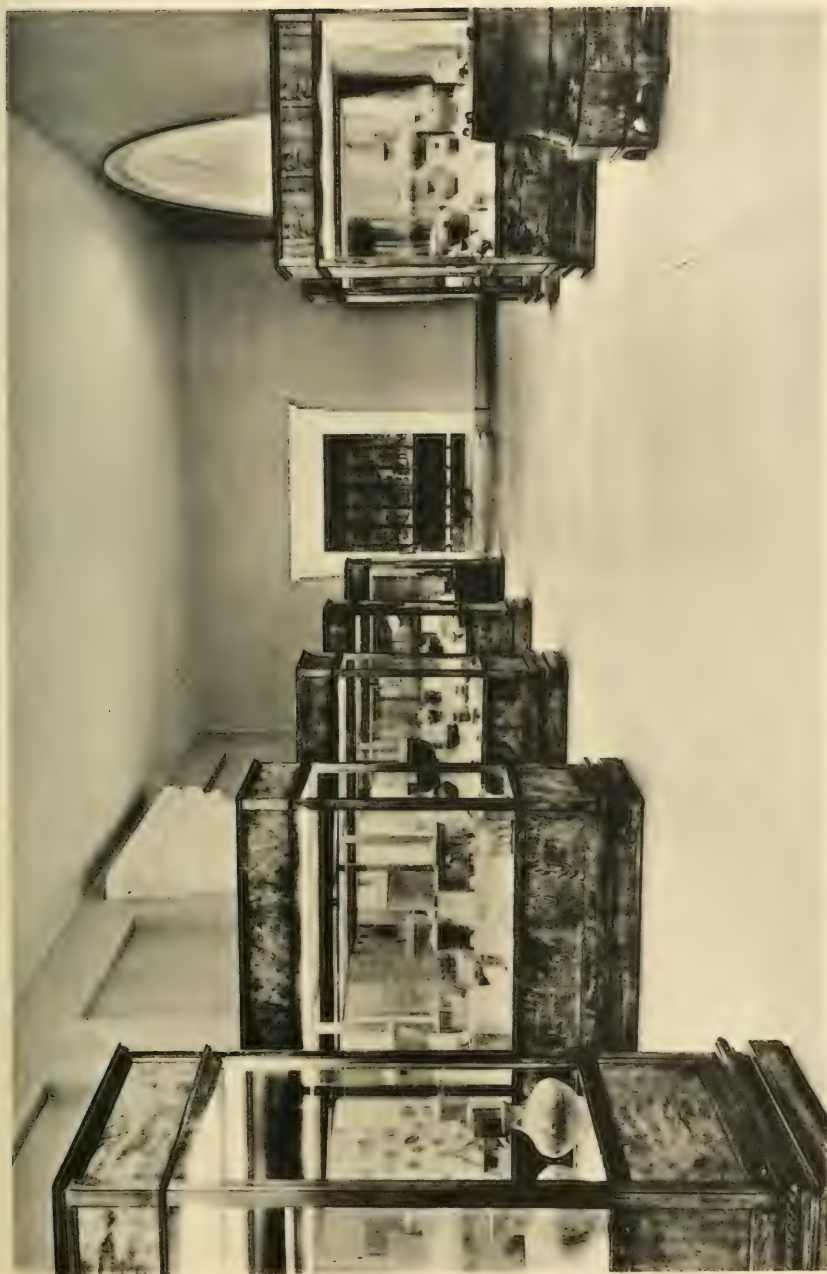
sent for criticism to Mr. Watelin, who approved them, made suggestions for the correct placing of some of the designs, and answered many questions on doubtful points. The final composition of the walls of the interiors is now in progress.

An interesting report on the human remains found at Kish was published by Messrs. L. H. Dudley Buxton and D. Talbot Rice in the *Journal of the Anthropological Institute* for 1931 (pp. 57-119).

Assistant Curator Henry Field spent part of September and October in Europe obtaining additional material and data for the Hall of the Stone Age of the Old World, supplementing his previous work on the Marshall Field Archaeological Expedition to Western Europe (1930). He visited Glasgow, where, through the courtesy of Mr. Ludovic McLellan Mann, he obtained a series of flint and bone implements of the Azilian period, and examples of the ancient fauna, including the extinct auk. This material is from Mr. Mann's personal collection resulting from excavations he has conducted, and comes to the Museum as an exchange. Casts were secured by Mr. Field of four important Azilian specimens, originals of which could not be obtained. Azilian material from Scotland is extremely rare, and hitherto no examples were allowed to leave the country.

In England Mr. Field purchased fifty flint implements collected from the Cromer Forest bed, which is believed to contain the earliest implements made by man. He also obtained casts of fifteen important paleolithic and neolithic objects from the British Museum (Natural History). In France, Mr. Field went to the Charente, where he was allowed to examine the recently discovered Lower Aurignacian Chatelperron level at La Quina and to revisit the Solutrean station on Le Roc, for the purpose of obtaining additional data for the reconstruction of this scene now in progress in the Hall of the Stone Age of the Old World.

In Paris twelve painted pebbles from Mas d'Azil and casts of the Neanderthal skulls from La Quina were purchased. Through the courtesy of Dr. Johannes Brøndsted in Copenhagen an important series of casts of Maglemosean and kitchen-midden specimens from various sites in Denmark were secured through exchange. Arrangements were made for an exchange of original specimens which belong to periods not previously represented in the Museum's collections. Mr. Field visited the Museum Moraviae at Brünn, and made arrangements for the exportation of original material purchased in 1930, representing the Aurignacian sites of Predmost, Pekarna, and Wistonice.



SECTION OF GEORGE T. AND FRANCES GAYLORD SMITH HALL (Hall 24)
Showing new types of cases, their arrangement, and installation of Chinese antiquities

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At Tübingen photographs and publications dealing with the Swiss Lake-dweller culture were obtained. These contain valuable data for the preparation of the Lake-dweller group in the Hall of the Stone Age of the Old World. With Professor Enno Littmann of Tübingen Mr. Field conferred on the inscriptions and tribal marks collected during the Marshall Field North Arabian Desert Expeditions (1927-28). Professor Littmann very kindly consented to make a report on this material.

A series of casts of paleolithic objects was ordered from the National Museum at St. Germain-en-Laye, near Paris. Mr. Field visited Miss Malvina Hoffman's studio in Paris and consulted with her in regard to her work for Chauncey Keep Memorial Hall.

This opportunity is taken to express the Museum's appreciation of the kind assistance rendered to Mr. Field from time to time by Abbé Breuil, Dr. Henri-Martin, Dr. P. Rivet, Dr. G. H. Rivi re, and Mr. Harper Kelley.

The results of a study made by Assistant Curator J. Eric Thompson of the Maya inscriptions at Quirigua, Guatemala, were published this year. This article demonstrates the corrections made by the Mayas at that city to keep their calendar year of 365 days in accordance with the solar year. The calculations used by the Mayas show that their year approximated the Gregorian year. They intercalated so accurately that the accumulated error over nearly 4,000 years of 365 days was but one day. Mr. Thompson is now preparing a guide to the archaeological collections from South America in Hall 9. A new edition of his leaflet, *The Civilization of the Mayas*, was issued toward the end of the year.

Curator Berthold Laufer devoted most of his time during the year to the reinstallation of the Chinese collections, in George T. and Frances Gaylord Smith Hall (Hall 24). However, he also made researches into prehistoric pottery of China in preparation for a monograph on this subject and into the history of Chinese and Indian chess.

Assistant Curator Paul S. Martin has completed the manuscript of a guide to Mary D. Sturges Hall of North American Archaeology.

A manuscript entitled *Arabs of the Kish Area, their History, Ethnology, and Physical Characters*, has been completed by Assistant Curator Field. He also wrote a report, now nearly completed, of the Marshall Field North Arabian Desert Expeditions (1927-28).

Assistant Curator Wilfrid D. Hambly completed a manuscript on the ethnology of Nigeria, based on the results of the Frederick

H. Rawson—Field Museum Ethnological Expedition to West Africa (1929–30).

Fourteen signed articles were contributed by the staff of the Department to *Field Museum News* during 1932; also twelve unsigned articles and seventeen brief items. The staff supplied material for forty-one newspaper publicity stories during the same period.

ACCESSIONS—ANTHROPOLOGY

The number of accessions recorded during the year is thirty-nine. Of these, twenty-eight are by gift, four as the result of expeditions, one by purchase, and six by exchange.

Twenty-two objects from the Eskimo of the Aleutian Islands were presented by Mrs. Ira M. Price, of Chicago, who obtained them while living on the islands. Among them are several fine ivory carvings and rare baskets which have been placed on exhibition in Hall 10. Mrs. Edwin C. Loomis, of Chicago, presented three beaded bags, a beaded pouch, a tobacco pipe pouch with bead and quill work, a beaded bandolier, a pair of beaded leggings, and a pair of beaded moccasins, from the Sioux Indians of North Dakota.

By exchange with the Peabody Museum of Harvard University, the Museum acquired 257 prehistoric stone, bone, and shell objects from Maine, Massachusetts, and Georgia. These are localities from which the Museum heretofore possessed but scanty archaeological material. Twenty-eight archaeological objects pertaining to Maya civilization were obtained through an exchange with the same institution. This collection contains several good examples of Maya stone sculpture from Copan, Honduras. Dating from about A.D. 700 they are representative of Maya art at its best period. One of these, a head of the Maya sun god, is now on exhibition in Stanley Field Hall (Case 2). Other objects obtained in this exchange are a number of copper bells, jade beads, and a ball of copal incense in a tripod bowl. These were recovered from the sacred well at Chichen Itza, Yucatan, into which they had been thrown as offerings to the rain god.

The following objects were acquired with a fund presented by the American Friends of China, Chicago: an archaic ceremonial jade scraper with zones of various colors; a figure of Kwan Yin, goddess of mercy, carved from buffalo horn, of the Ming period (sixteenth century); a figure of celadon porcelain, representing the god of the north, of the Sung period (twelfth century); and a cover of cut velvet with elaborate designs of peonies in five colors, of the K'ien-lung period (1736–95). A silk handkerchief, inscribed with

one of the classical books of China for use as a "crib" in a civil service examination, was presented by Mr. Edward Barrett (since deceased), of New York. Its significance is described in *Field Museum News* for August, 1932.

A collection of archaeological interest, consisting of thirty-four pottery sherds and sixteen flint implements, excavated at Hong Kong, is the gift of Professor J. L. Shellshear, of the University of Hong Kong.

Supplementing a small bronze piece from Luristan, Persia, presented in 1931, Dr. Arthur U. Pope, of New York, this year made a gift of six interesting bronze implements: a mace head, a rein ring, three battle axes, and a spearhead.

Mrs. Nathaniel Allison, of Chicago, presented a wooden fern root pounder from New Zealand. This specimen was found in a swamp, and is certainly very old, possibly antedating the arrival of the Maori.

Fifteen objects from the Fiji and the Polynesian Islands are the gift of Mrs. Freeman S. Hinckley, of Chicago. Noteworthy among these are a very fine, carved food dish from the Fiji Islands, of a type not previously represented in the Museum's collections, and a model of the ancient Fijian double canoe, complete with sail and rigging.

An exchange with Baron Max von Oppenheim, of Berlin, resulted in the acquisition of a number of fragments of painted pottery of various types from Tell Halaf, upper Mesopotamia. The designs on these fragments are interesting for comparison with the early painted ware associated with pictographic tablets in linear script from Jemdet Nasr near Kish, obtained by the Field Museum-Oxford University Joint Expedition to Mesopotamia.

A flint ax of the Upper Acheulean period from Saintes, Somme Gravels, northern France, presented by Mr. Harper Kelley, of Paris, is beautifully flaked and demonstrates admirably the skill of the prehistoric craftsman.

This opportunity is taken to express the institution's grateful appreciation to Mr. Austin Corbin, of New York, a member of the Blue Mountain Forest Association of Newport, New Hampshire, for presenting four wild boar skins for use in one of the groups to be set up in the Hall of the Stone Age of the Old World.

CATALOGUING, INVENTORYING, AND LABELING—ANTHROPOLOGY

Twenty-six of the thirty-nine accessions received during the year have been entered in the inventory books.

The work of cataloguing has been continued as usual, the number of catalogue cards prepared during the year totaling 7,360. The total number of catalogue cards entered from the opening of the first inventory volume is 205,883. Of these entries, 8,577 were made during 1932, including cards left over from previous years.

The catalogue cards prepared are distributed as follows: archaeology and ethnology of North America, 789; archaeology and ethnology of Mexico, Central and South America, 38; archaeology of China, 299; archaeology of Mongolia, 366; ethnology of Polynesia, 2; ethnology of Africa, 521; prehistoric archaeology of Europe, 3,039; archaeology of Syria, 47; archaeology of Persia, 6; physical anthropology, 2,253. Most of these cards have been entered in the inventory volumes, which number fifty-seven.

A total of 13,201 labels for use in exhibition cases was supplied by the Division of Printing. These labels are distributed as follows: Eskimo and Northwest Coast, 4,561; Hopi, 450; Central and South America, 512; China, 5,852; Melanesia, 1,020; Europe, 806. The Division of Printing also supplied 9,060 catalogue cards and 1,810 blank cards for the label file.

The number of photographs mounted in albums is 495. Two new albums were opened. To the label file 2,058 cards were added.

INSTALLATIONS AND REARRANGEMENTS—ANTHROPOLOGY

The main efforts of the Department during the year were directed toward the installation of Hall 10, devoted to the ethnology of the Eskimo and Northwest Coast Indians, and George T. and Frances Gaylord Smith Hall (Hall 24), in which the exhibits illustrate the archaeology of China. Hall 10 is now completed, and Hall 24 is 90 per cent completed.

One hundred and twelve exhibition cases, an unprecedented record for the Department, were newly installed or reinstalled during the year, distributed as follows:

	Cases
Stanley Field Hall.....	2
Mary D. Sturges Hall.....	1
Eskimo and Northwest Coast Indians (Hall 10).....	40
Southwest ethnology (Hall 7).....	6
George T. and Frances Gaylord Smith Hall (Hall 24).....	42
Joseph N. Field Hall (Hall A).....	23
The Stone Age of the Old World (Hall C).....	6
Total.....	120

In Stanley Field Hall a small collection illustrating Maya art and industry was placed on exhibition (Case 6). Much of the

material was collected by the First, Second, and Third Marshall Field Archaeological Expeditions to British Honduras under the leadership of Assistant Curator J. Eric Thompson. Dominating the exhibit is a forceful representation in stone of the Maya sun god. In contrast is a delicately carved piece of shell showing a seated priest or ruler wearing an elaborate headdress. Indian dentistry may be seen in the sets of teeth decorated by filing and the inlaying of jade studs.

Case 7 in Stanley Field Hall, showing selected examples of Chinese art, has been reinstalled, the center piece now being a porcelaneous vase of the third century A.D.

The collections reinstalled in Hall 10 are Northwest Coast and Eskimo material, formerly on exhibition in Mary D. Sturges Hall, which is now devoted to North American archaeology. In Hall 10 they have been rearranged under the direction of Dr. Ralph Linton. These exhibits are now installed on buff screens and have labels of the new buff-colored type. Many objects received since the previous installation have been added to the new exhibit. The western half of the hall is occupied by a general exhibit of Northwest Coast art at the northern end, and by collections from the Tsimshian, Kwakiutl, Bella Coola, Nootka, and tribes of Puget Sound, which are arranged from north to south. The Kwakiutl collections are particularly complete. It has been possible to show the masks and other paraphernalia of the more important societies taking part in the Winter Ceremonial, the principal religious ceremony of this tribe.

The northeast quarter of the hall is devoted to the culture of the Tlingit and Haida. As the culture of these two tribes is practically identical, objects from both have been combined to eliminate needless repetition. Members of these tribes were the best carvers on the Northwest Coast, and much of the material shown here possesses considerable artistic merit.

The Eskimo exhibits occupy the southeast quarter of the hall. The most noteworthy feature is an exhibit of Eskimo art and antiquities, which contains type collections illustrating the culture of the Old Bering Sea and Punuk groups, which preceded the modern Eskimo in the Bering Sea region. It is the only exhibit of its sort in this country, and was made possible by material brought back by the John Borden-Field Museum Alaska-Arctic Expedition, and by exchanges with the United States National Museum. A new feature has been introduced into the Eskimo exhibits. The costumes are shown on models with portrait heads in plaster, made by Modeler

John G. Prasuhn and colored by Mr. Leon L. Pray, of the Department of Zoology. These heads show the physical type of the Eskimo in each of the localities represented by the costumes.

The Chinese collections in the East Gallery (George T. and Frances Gaylord Smith Hall) were completely reinstalled during the year in a new type of case with concealed lighting. Plate XXVI in this Report conveys a good idea of the present appearance of the hall and the arrangement of cases. The hall will contain a total of thirty-seven floor cases and sixteen wall cases, with the addition of framed paintings and several open exhibits on bases. Thirty-two floor cases and ten wall cases were installed this year. In the process of rearrangement the material previously on exhibition was carefully sifted, only the best examples being retained. Much new material obtained through gifts and by the Marshall Field Expedition to China in 1923 has been added. The result is a much more forceful and clearer representation of the development of Chinese civilization in all its various phases from earliest times down to the end of the eighteenth century. Each case contains a general descriptive label which sets forth the characteristic features of the material and the period in question. In addition, each object is provided with a label of its own. Two large bronze drums, a cast iron bell, and a temple censer are shown on bases. A lacquered imperial screen with elaborately carved dragons, which was presented some years ago by the Arts Club of Chicago, has been placed at the north end of the hall.

The reinstallation of Joseph N. Field Hall (Hall A), begun in 1931, has progressed satisfactorily. Twenty-three cases with buff-colored screens and labels have been placed on exhibition. Three of these cases contain material from New Guinea not previously exhibited. In all cases many improvements have been made in the arrangement of the objects; many have been removed from exhibition and replaced by better ones. Photographs have been added to nearly all screens to illustrate the method of using various articles or the manner of wearing clothing and ornaments. Many products of the industries of these primitive peoples show remarkable artistic ability, as demonstrated by the wood carvings of New Ireland, the masks of New Britain, and the great variety of decorative designs found in many parts of New Guinea.

In twenty-three cases of Hall F (Polynesian ethnology) the old style labels have been replaced with buff cards in black type. The relabeling is now complete in the forty-one cases of this hall. In

Mary D. Sturges Hall, devoted to North American archaeology, two cases were labeled, and maps and numbers were placed in all cases of this hall, which is now completed. The model of the Great Serpent Mound of Adams County, Ohio, has been greatly improved by a thorough overhauling given it by Mr. Pray. It is now exhibited with an explanatory label in a new, specially constructed case in Mary D. Sturges Hall.

An innovation in Hall J, devoted to Egyptian archaeology, is a series of colored transparencies set into one of the walls and electrically illuminated from behind, showing scenes among the principal ancient ruins of Egypt.

Good progress has been made with the installation of Hall C, which is to be devoted to the stone age of man in western Europe. Four of the eight groups planned have been completed, and six cases of archaeological material have been installed.

The chief work in African ethnology during the year has been the sorting and laying out for installation of the material collected by the Frederick H. Rawson-Field Museum Ethnological Expedition to West Africa. Approximately two-thirds of this material has been prepared for exhibition, while the remainder has been displayed in the Study Room. The total number of cases planned for exhibition is thirteen. Labels for these have been prepared.

All phonographic records made by various expeditions of the Department, amounting to more than one thousand, have been identified, classified, listed and systematically arranged in a cabinet placed in the Study Room.

Repairing and numbering of specimens, and poisoning of exhibition cases and perishable material, were taken care of in the usual manner.

DEPARTMENT OF BOTANY

EXPEDITIONS AND RESEARCH

No expeditions were conducted during the year by the Department of Botany. However, in a delayed shipment from the Vernay-Lang Kalahari Expedition for Field Museum (conducted in 1930 primarily for the Department of Zoology) there were received 884 mounted and named sheets of South African plants. Part of these were collected in the Kalahari Desert, an area previously unrepresented in the Museum's Herbarium, and the remainder consisted of plants of other regions in South Africa.

Mr. C. Suydam Cutting, of New York, presented 638 specimens of plants as a result of a private expedition which he sponsored in 1932 along the Burma-Tibet frontier. These plants were collected by Captain F. Kingdon Ward, British botanist, noted for his work on the Chinese flora. The material, representative of the flora of the high mountains, consists largely of plants belonging to groups which occur also in North America.

In Europe Assistant Curator J. Francis Macbride continued his work, described in previous Reports (1929, pp. 62-63; 1930, pp. 331-334; 1931, pp. 72-74), of photographing, under a grant from the Rockefeller Foundation, type specimens of American plants preserved in European herbaria. During 1932 about 5,000 negatives were made, of which 3,997 thus far have been received at the Museum, a substantial addition to the collection of negatives that has grown so rapidly since the inception of the work late in the summer of 1929. More than 23,000 photographs have been made since the work began.

During the first half of the year operations were continued at the Berlin Botanical Garden and Museum, where the work has now been practically completed. This work has proceeded with the cooperation of the director, Dr. Ludwig Diels, and the staff of the Berlin museum, with results of incomparable benefit to systematic botanists of present and future generations. It is impossible to express adequately Field Museum's appreciation of this generous spirit of cooperation, maintained through the three years that the work has continued.

During the summer of 1932, arrangements were made for photographing the collections of the genus *Begonia* at the Botanical Institute of Hamburg. With the cordial approval of Dr. Edgar Irmischer, this task was completed satisfactorily.

With the aid of Dr. Frederick Wirth, president of the American Chamber of Commerce in Berlin, permission was obtained from the president of the province of Hanover to photograph the important types of palms described many years ago by Wendland, now preserved at Herrenhausen in Hanover. Since these have not been accessible generally to botanists, the photographs will have great value.

Later in the year further photographic work was carried on at the Botanical Institute in Munich, which Mr. Macbride had visited in 1930. From the director, Dr. Fritz von Wettstein, and Dr. Karl H. Suessenguth there was received the same generous assistance

extended on the occasion of the previous visit. At Munich there is found the most extensive and significant series extant of the plants assembled by Martius, father of Brazilian botany.

The last months of 1932 were passed by Mr. Macbride at Copenhagen, where he photographed types in the collections of the University Botanical Museum. Dr. Carl Christensen, in charge of the herbarium, gave hearty cooperation, and the work has been carried to a successful conclusion. This herbarium is of great interest because of its wealth in early collections, particularly those of Lund and Warming from Brazil, Liebmann from Mexico, and Oersted from Nicaragua and Costa Rica.

In the photographs made to date of a total of more than 23,000 type specimens, Field Museum has acquired a representation of the flora of South America which, in conjunction with the specimens from that continent already in the Herbarium, can scarcely be duplicated elsewhere. With all this new material at hand, it is now possible to begin study of almost any group of South American plants with expectation of good results, and determination of collections received for identification can be undertaken with confidence, since the majority of known South American species are represented by either photographs or specimens, or by both.

The beneficial results of this work are not confined to the Herbarium of Field Museum. Prints of the photographs are available at cost of production to all other institutions desiring them, and the requests thus far received for them have been reasonably extensive and would undoubtedly have been much greater but for the effects of the present economic situation on the funds of scientific institutions.

The Museum Herbarium has been in constant use throughout the year by the staff of the Department of Botany, and by numerous visitors to the Museum, including some from foreign countries. During the year there appeared at least twenty-seven papers by American and European botanists based wholly or in part upon material in this Herbarium. Probably others which have not been brought to the attention of the Museum authorities have also been published.

During the early part of the year Dr. H. S. Pepon and Mr. E. G. Barrett, of the Illinois Natural History Survey, spent several weeks in study of the Museum's Illinois Herbarium, to obtain data for the *Flora of Illinois* soon to be published by the Survey. This publication will prove of inestimable value to those interested in

the vegetation of Illinois, as well as to all botanists of the Mississippi Valley.

The Museum published in September, as Volume VIII, No. 6, of the Botanical Series, a paper by Dr. Earl E. Sherff, a Chicago botanist, entitled *Revision of the Genus Cosmos*. Twenty-six species are enumerated.

Associate Curator Paul C. Standley published twenty-one short papers based more or less directly upon the Herbarium collections. One of these, entitled *New Plants from British Honduras*, appeared in December as Volume XI, No. 4, of the Botanical Series of the Museum. Seven of Mr. Standley's papers, treating of American trees studied at the Museum, were printed in *Tropical Woods*. To the same periodical Mr. Llewelyn Williams, Assistant in Wood Technology, contributed a paper on Peruvian mahogany, based on material and observations in northeastern Peru resulting from the Marshall Field Botanical Expedition to the Amazon (1929-30). The members of the staff also prepared for *Tropical Woods* several abstracts and reviews of current literature relating to tropical trees. Sixteen signed articles on various botanical subjects by members of the Department staff, and numerous other items, were published from time to time in *Field Museum News*. Articles on the wood exhibits by Mr. Williams appeared in the trade journals *Veneers* and *Southern Lumberman*.

The unusually extensive plant collections which arrived during the year have fully occupied the time of the Herbarium staff. Unfortunately the staff was reduced during the latter part of the year by the retirement, for reasons of failing health, of Mr. Carl Neuberth, Custodian of the Herbarium, who during his many years of service has been largely responsible for the excellent order and condition of the collections. It has been possible, however, to keep up to date all routine work except that of mounting specimens. In spite of the volume of material sent to the Museum for study, it usually has been possible to report upon it with reasonable promptness.

During 1932 there were submitted to the Herbarium for more or less critical determination 207 lots of plants. Of these, 48 lots, consisting of 5,253 specimens, were named and returned to the senders, while 159 lots, comprising 7,717 specimens, were retained by the Museum.

In addition, there were determined many specimens of plants from the Chicago region and elsewhere that were brought to the

Museum by visitors, teachers, and students, or forwarded by mail. In some cases only one or two specimens were submitted, while in others there were collections containing up to a hundred. Numerous telephone calls for botanical information, and many letters containing diverse queries, were answered.

A large proportion of the material received from other institutions for determination belonged to the Rubiaceae or coffee family, with the study of which Mr. Standley has been engaged for several years. Among the larger sendings of this group forwarded for naming were 1,859 sheets from the Museum of Natural History, Paris, largely Brazilian plants obtained almost a century ago; 320 sheets from the Botanical Museum of Berlin; 103 from the State Museum of Stockholm; 282 from the United States National Museum, containing specimens collected about the end of the eighteenth century by José C. Mutis, pioneer explorer of the flora of Colombia; and 1,422 from the University Botanical Museum of Copenhagen.

Determination of large collections left little time for special work of an original nature. However, on the basis of a large amount of material obtained recently on Barro Colorado Island, Canal Zone, Associate Curator Standley prepared a new enumeration of the plants of that island, listing some 1,200 species. This has been submitted for publication to the Arnold Arboretum of Harvard University. In association with Professor Samuel J. Record, Mr. Standley also compiled for publication an account of the plants of British Honduras.

Assistant Curator J. Francis Macbride has continued at Berlin and elsewhere in Europe his studies of Peruvian plants, and has made progress in the preparation of manuscript for the *Flora of Peru*.

Mr. Hermann C. Benke, of Chicago, a local botanist, has visited the Herbarium as in previous years, and has devoted a great deal of time to study of collections made by himself and others. He has rendered much assistance in the determination of North American material.

ACCESSIONS—BOTANY

During 1932 the Department of Botany received 370 accessions, comprising 37,500 specimens, both numbers being in excess of the receipts of the preceding year. The material consisted of specimens for the Herbarium and for the wood and economic collections. Of the total number, 11,896 were gifts, 12,661 were received through exchange, 1,363 were purchased, and the balance came from miscellaneous sources.

Of the Department's total receipts of 37,500 specimens, those for the Herbarium consisted of 36,900 items—plant specimens, photographic prints, and negatives. The most important accession of the year, and the largest single item ever received by the Department of Botany, is not included in the figures just cited. It is the University of Chicago Herbarium, composed of 51,600 mounted specimens of plants. Twenty-five years ago these were deposited with Field Museum, and incorporated with the general Herbarium. During 1932, the contract between the university and the Museum regarding the deposit having expired, the trustees of the university very generously presented the collection to the Museum, and it now becomes a permanent part of the Museum Herbarium, with the provision that it shall be available to students of the university qualified to make use of it. Its permanent acquisition is a matter of great satisfaction.

The collection was formed largely through personal effort of the late Dr. John M. Coulter, for many years head of the department of botany of the university. Its nucleus was his own private herbarium, which was assembled when he was occupied primarily with systematic botanical work, and it therefore contains a large number of types of the species he described from the western United States, Central America, and elsewhere. In addition, it possesses much historical material obtained by early collectors in the western states, as well as representative collections from all parts of North America, and from other continents. With the addition of this collection the number of specimens received by the Herbarium during the year, therefore, might be stated to be 88,500, rather than the number reported above.

The gift next in importance received during 1932 came from Dr. Earl E. Sherff, of Chicago, and consisted of 2,234 photographic negatives of type and other important specimens of the family Compositae, chiefly of the genera *Bidens*, *Cosmos*, and *Coreopsis*. Dr. Sherff has been engaged for many years in the study of these groups and has examined most of the material in the leading herbaria of America and Europe. The negatives he has given have been added to the Museum's large collection of type negatives, and will be available for the use of other institutions interested in them.

Mention is made on page 328 of the continuation of the work of Assistant Curator Macbride in European herbaria and of the photographic negatives of type specimens of tropical American plants received from him. These represent chiefly South American types

in the Berlin Botanical Garden and Museum. There were added to the Herbarium approximately 5,700 prints from these type negatives. It is worthy of record, also, that during 1932 the Museum distributed by sale or exchange to eight institutions and individuals of North and South America 12,806 prints from the negatives.

In spite of the fact that it has been impossible to purchase more than a few specimens, it is most satisfactory to be able to report unusually large receipts, by gifts and exchanges, of plants from South and Central America. Among the outstanding accessions are 601 specimens from the Department of Cuzco, Peru, presented by Dr. Fortunato L. Herrera, rector of the University of Cuzco; and 814 plants and wood specimens presented by the School of Forestry of Yale University through Professor Samuel J. Record, the material being from British Honduras, Colombia, Brazil, Ecuador, and other regions. This collection contains numerous new or rare species.

One of the most valuable accessions of recent years consisted of 922 Brazilian plants, belonging to the families Rubiaceae, Amaranthaceae, and Nyctaginaceae, presented by the Instituto Biologico, of São Paulo, Brazil. Associate Curator Standley, who studied and determined the material, reported that it was the most important single collection that he had handled during many years of work in herbaria. Welcome, too, was a sending of 552 Brazilian plants, chiefly Rubiaceae, received from the Museu Nacional of Rio de Janeiro, through the courtesy of Dr. A. J. de Sampaio.

Through the continued cooperation of the Companhia Ford Industrial do Brasil, in Pará, Brazil, there were received in 1932, through Mr. Roy Carr, 469 specimens of plants, chiefly from Fordlandia on the Tapajos River. Since this collection consists almost wholly of timber trees and includes 185 ample specimens of wood, its value is considerably greater than the actual number of specimens would indicate. The material was determined in the Museum, and a report upon it was sent to the Ford company. Labeled samples of wood also were returned to the company, which is making a study of the plant resources on its properties. A preliminary list of the trees represented, with their vernacular names as furnished by the Brazilian collectors, Messrs. Monteiro da Costa and Capucho, was prepared by Associate Curator Standley, and published during the year in *Tropical Woods*. Several striking new species of trees were described from the collections, which include many Amazonian species represented in the Herbarium previously only by photographs of the types.

One of the distinctive gifts to the Herbarium during the year, came from Dr. Anton Heimerl, of Vienna, long recognized as the leading authority on the family Nyctaginaceae. Having completed his life work upon this difficult group of tropical plants, he forwarded a private collection of 100 specimens in order that they might be available to Associate Curator Standley, who likewise has devoted much time to the study of this family. It is with special gratitude that there is recorded also a gift of Uruguayan plants, from Mr. Cornelius Osten, of Montevideo, who, in addition, lent for study his private collection of Rubiaceae.

The Museum's series of Argentinian plants is as unsatisfactory as that of most other North American herbaria. Consequently it was gratifying to obtain from Argentina during 1932 several lots of Rubiaceae from the following institutions and individuals: Museo Nacional de Historia Natural, of Buenos Aires, through the courtesy of Professor Alberto Castellanos; Museo de La Plata; Dr. Angel L. Cabrera, of La Plata; Museo de Historia Natural, of Tucumán; Mr. Arturo Burkart, of Buenos Aires; Ministerio de Agricultura, Buenos Aires, through Dr. José F. Molino; and Instituto de Botánica y Farmacología, of Buenos Aires.

Noteworthy among the gifts of Mexican plants are a collection obtained in the state of Tamaulipas by Mr. H. W. von Rozynski, of Jaumave, and specimens from the state of Veracruz, forwarded by Dr. C. A. Purpus. A collection from the lakes of the Yucatan peninsula and Guatemala was presented by Dr. Alfons Dampf, of Mexico City, and specimens of Yucatan plants were forwarded by Dr. Román Sabas Flores, of Progreso, Yucatan.

Among the important gifts of Central American plants were specimens from Mr. William A. Schipp, of Stann Creek, British Honduras; from the Dirección General de Agricultura of Guatemala City, through Mr. Jorge García Salas; from the Museo Nacional of Costa Rica, specimens collected by its director, Professor Manuel Valerio; another collection from Costa Rica, gathered by Professor Rubén Torres Rojas, of Cartago; plants collected on Barro Colorado Island, Canal Zone, from Mr. James Zetek, Resident Custodian; and further Barro Colorado collections from Dr. R. H. Wetmore, Mr. E. G. Abbe, Dr. R. H. Woodworth, and Mr. P. A. Vestal, of Harvard University.

Among the receipts of United States plants are 988 specimens from the Mississippi Valley and the southern and southwestern

states, collected, presented, and determined by Mr. Hermann C. Benke, of Chicago.

Besides the accessions specifically mentioned above, the Herbarium received a large amount of valuable material by gifts and exchanges from institutions and individuals in many parts of both the New and the Old Worlds. A summary will be found in the List of Accessions for the year (p. 380 of this Report).

Of economic material and woods there were received from scientific and commercial institutions and from individuals as gifts or in exchange 594 specimens, of which 458 were wood samples. Some of these are for exhibition purposes, and some are to augment the reference collections. They also are noted in the List of Accessions, or described under Installations and Rearrangements—Botany.

Through the cooperation of Acting Curator B. E. Dahlgren with Mr. S. C. Johnson, of Racine, Wisconsin, the Museum secured a series of products of the carnauba palm, assembled early in the year during a visit to Ceará, Brazil. Through the aid of the government agronomist in charge of the activities of the Brazilian Ministry of Agriculture in that state, Mr. Humberto Rodrigues de Andrade, special opportunities were provided for observations on the carnauba industry and for collection of data and representative material. Two export houses of Ceará contributed specimens showing the prevailing classification of carnauba wax, which forms one of the main export products of the semi-dry regions of northeastern Brazil.

To the Museum's large series of domestic and foreign woods there was added a large number of specimens. Particularly noteworthy are the woods, with accompanying herbarium specimens, sent by the Companhia Ford Industrial do Brasil. The Museum now possesses more than 2,500 authentic specimens of woods from the Amazon region.

In continuation of contributions made in previous years, Ichabod T. Williams and Sons, of New York, donated twenty-nine exhibition panels of imported woods from Brazil, East Africa, India, Philippine Islands, and other countries. The Schick-Johnson Company, of Chicago, contributed its services for the execution of the plywood work on various panels required for exhibition in the Hall of Foreign Woods (Hall 27).

In 1932 the Department of Botany distributed in exchanges 6,052 herbarium specimens, woods, photographs, and packets of seeds, to thirty-five institutions and individuals in the United States, Europe, and South America. The distribution consisted in

large part of Peruvian material collected by the Marshall Field Expeditions. It also included several hundred duplicate sheets removed from time to time from the Herbarium, and duplicates of woods received, prepared, and named in the Museum. Loans of mounted specimens from the Herbarium amounted to 1,620 specimens, sent out in thirty-six lots.

CATALOGUING, INVENTORYING, AND LABELING—BOTANY

In 1932 the permanent collections of the Herbarium were increased by about 15,000 sheets of plants and photographs, the total number of mounted specimens being at present 653,078. The specimens labeled and incorporated into the collections of the Department of Botany as a whole now number 670,881. Additions to the records of the collections of economic material totaled 594 in 1932. Labels were written for the economic reference collections, for many thousands of herbarium specimens, and for thousands of duplicate specimens distributed in exchanges.

There is maintained in the Herbarium a card catalogue recording the contributions of every collector whose plants are in the collections, and the extent to which the flora of any country is represented. The index of collectors contains 12,159 cards, with the names of almost as many collectors. To this index 189 cards were added during 1932. The geographic index now consists of 3,187 cards.

From the Gray Herbarium of Harvard University 5,230 cards were received in continuation of the index of new species of American plants, and these were inserted in the Museum's file of these cards. Also there were received from the Institut Colonial de Marseille, Marseilles, France, 919 index cards dealing with phases of economic botany.

Several thousand cards were prepared and added to the catalogue of the Department library for the books and pamphlets on travels, plant geography and ecology, morphology, physiology, etc.

INSTALLATIONS AND REARRANGEMENTS—BOTANY

In the Hall of Plant Life (Hall 29) there were installed during the year some important exhibits of material obtained in part by Museum expeditions, and in part produced by the Stanley Field Plant Reproduction Laboratories. The recent work on various Paleozoic plants for the Carboniferous forest group, installed in Ernest R. Graham Hall (Hall 38) in 1931, led to an expansion of the *Equisetum* exhibit in the Hall of Plant Life in 1932. This was



REPRODUCTION OF FLOWERING BRANCH OF TULIP TREE (*Liriodendron tulipifera*)

Charles F. Millsbaugh Hall of North American Woods (Hall 26)

Reproduced in Stanley Field Plant Reproduction Laboratories

Department of Botany of the Museum

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reinstalled with the addition of fossil material and some reconstructions, notably portions of the large calamites which in past ages represented this now greatly reduced group of plants.

Likewise an exhibit of seed ferns (Cycadofilices or Pteridospermeae) was prepared to represent in the Hall of Plant Life this entirely extinct but botanically important group of plants with cycad-like seeds. This display includes a reconstruction of the famous *Lyginopteris Oldhamnium*, of which seeds and foliage had long been known separately before it was realized that they were parts of the same plant.

The Marshall Field Botanical Expedition to the Amazon in 1929 furnished material and information for some of the new botanical exhibits which were completed in 1932. Perhaps the most interesting of these are a branch of the Brazil nut tree, and a fruiting branch of one of the more typical monkey-pots, a species of *Sapucaia* yielding nuts even superior to Brazil nuts. These have been reproduced and installed, together with a representative variety of the curious large and woody dried fruits of this family, obtained in part by the same expedition.

Another exhibit resulting from collecting and preparation in the field by the Amazon expedition, and subsequent completion in the Stanley Field Plant Reproduction Laboratories, is a fruiting branch of the souari nut or tropical butternut tree of northern South America, of which there are several species. At present rarities outside of the countries where they grow, some of these probably will become much better known. The thick, fleshy pulp of the fruit is of interest as a source of oil, and the excellent wood has a distinctive appearance, as may be seen from the small specimen displayed with the branch, and from planks shown among the Amazonian woods in the Hall of Foreign Woods (Hall 27).

A coca bush which the Amazon expedition encountered in flowering as well as fruiting stage, furnished the original for reproduction in celluloid and glass of this plant from which the alkaloid cocaine is obtained. The employment of celluloid for leaf forms, as exemplified in the coca-bush exhibit, makes it possible to reproduce both surfaces in perfect detail, and represents an important advance in the technique at the disposal of the Museum laboratories.

Another branch which may well be considered a technical achievement as a satisfactory reproduction of the original is that of the curious tropical flowering shrub or tree, *Brunfelsia*. This furnishes a beginning toward a representation of the nightshade family with

its many important plants, including belladonna, tobacco, pimentoes, potatoes, tomatoes, etc. Of these a pimento and a tobacco plant are well under way.

Another new exhibit of an important economic plant which has long been a desideratum for the Department's economic displays is that of a peanut plant in flower and fruit. This plant's somewhat unusual habit of developing and ripening its fruit only under ground, after flowering in the usual manner, is undoubtedly its special point of botanical interest. Though in a botanical sense the peanut is not a nut but a legume pod, the instructive reproduction of this plant has been installed, in accordance with popular conception, in the exhibit of nuts of American origin in Hall 25.

An extensive addition to the exhibits in this hall is an assemblage of specimens of the principal vegetable foods of New World origin. This is designed to show at a glance which of numerous vegetables and fruits in common use are native or peculiar to the two American continents. Some belonging to the northern circum-polar flora, such as various blueberries, raspberries, strawberries, etc., are omitted because they have Old World counterparts. Included are Indian corn, pumpkin, squashes and marrows, potatoes, sweet potatoes, manioc or cassava, Jerusalem artichokes, pimentoes, tomatoes, string beans, Lima beans, kidney beans, peanuts, avocados, papaws, papaya, tuna fruit, pineapple, persimmons, the fox grape, which is the parent of Concord and catawbas, and others. One of the American nuts has been included for the purpose of calling attention to the special exhibit in the same hall of the many varieties of these.

To the economic botany exhibits in Hall 28 some important additions were made during the year. One of these is a case showing the principal vegetable oils used for industrial purposes. These are arranged in two general groups: one of the chief so-called non-drying oils used for soap making, for dyeing, and for illuminating; the other group including the drying oils used commercially in paints and varnishes, and for foundry oils. The exhibit comprises also the most prominent oil-producing seeds. Most of the oil samples were presented by the Scientific Oil Compounding Company of Chicago, through the courtesy of Dr. Otto Eisenschiml, whose cooperation should be especially acknowledged.

To the exhibits of cellulose products in Hall 28 was added one showing various kinds of rayon or so-called artificial silk. This exhibit illustrates the different kinds of raw materials used and

the chemical treatment by which the cellulose is dissolved and subsequently re-precipitated in the form of threads. In the same half-case are exhibited the different stages in the preparation of celluloid lacquer or varnish.

A case showing paper made from wood pulp was added to the exhibit of paper-making materials in the same hall. A series of samples represents the various stages in the mechanical and chemical treatment of coniferous woods for the manufacture of wood pulp paper. There are also shown some of the common and some of the unusual types of paper manufactured from coniferous and other common soft woods of this country. A series of tropical soft woods suitable for paper pulp is another feature of the exhibit.

The cork exhibit, also in Hall 28, was completely reinstalled and relabeled, as was the case of products made from bamboo. Information for some of the labels of the latter was kindly furnished by Professor T. Nakai of Tokyo Imperial University.

In the Hall of Foreign Woods (Hall 27) there were installed five panels of commercial woods of the West Indies: blue mahoe, satinwood, degame, cocus wood, and West Indian boxwood.

Of the extensive collection of Japanese woods which have been on display for several years, one case was refinished and reinstalled. The unusually fine collection of planks representing the principal woods of eastern Australia was also refinished and reinstalled. A full length veneered panel of the so-called Australian silky oak, and a series of four panels of Oriental wood (*Endiandra Palmerstonii*) showing a wide variation of grain, were added.

During the last months of the year the Division of Printing furnished the Department of Botany with a large quantity of labels including descriptive labels for new exhibits as well as for some installations of the previous year. As a result there are now few specimens with labels lacking. The black labels in the Hall of Plant Life are being replaced with new buff labels.

General case labels of such size that they can be read with ease from the central aisles of the halls have been prepared for most of the cases of the Department, and have been installed in two halls. Placed near the top within the cases, they serve to indicate in a word or two the general nature of the material displayed. Thus a visitor may see at a glance whether an exhibit of woods is composed of specimens from Australia, Europe, or Argentina. In the exhibit of industrial raw materials, the words "cotton," "linen," "jute,"

“ramie,” etc., will guide him. In the Hall of Plant Life such words as “algae,” “fungi,” “conifers,” etc., will aid in finding any desired item and at the same time will serve the general purpose of classification.

DEPARTMENT OF GEOLOGY

EXPEDITIONS AND RESEARCH

The Department of Geology had no official expeditions during 1932. However, some collecting was done by certain members of the Department staff who chose to engage in such activities during their vacations, presenting to the Museum the specimens resulting from their efforts. Of such undertakings the most important was carried on by Mr. Bryan Patterson, Assistant in Paleontology, in the neighborhood of Grand Junction, Colorado. Mr. Patterson was accompanied by Mr. Thomas J. Newbill, Jr., of La Grange, Illinois, who generously provided a car for transportation and gave much assistance in the field. The purpose of the expedition was to obtain material of individuals of the fossil mammal belonging to the genus *Titanoides*, a few bones of which had been received in the previous year. This animal belonged to the group of amblypods, an order of ungulates which became extinct in early Tertiary times. Members of the genus were about the size of a modern rhinoceros, but had been known hitherto only from a few scattered bones.

Mr. Patterson and his associate made seven different finds, which afforded vertebrae, limbs and feet, ribs, part of a skull and complete lower jaws of members of the genus. From this material it will be possible to make a much more nearly complete representation of the animal than heretofore. Much assistance was rendered the collectors by Mr. E. B. Faber, of Grand Junction, who had furnished the material on which Mr. Patterson's first study of the animal had been made and in whose honor the species had been named. Besides collecting specimens, careful records of the stratigraphy of the region were made by Mr. Patterson, and these will aid in further investigations.

Investigation and description of portions of the collections made by the Marshall Field Paleontological Expeditions to South America, conducted from 1922 to 1927, were continued during the year. In pursuance of this work, Associate Curator Elmer S. Riggs and Assistant Patterson prepared a publication on certain notoungulates from the Notostylops beds of Patagonia. The manuscript is now in press.

A monograph on the Cerro Cuadrado Petrified Forest of Patagonia, based on collections of petrified cones and branches made by the Marshall Field Expeditions in 1924, has been prepared and submitted by Dr. George R. Wieland of Yale University. Dr. Wieland has been engaged in the preparation of this monograph for several years, and his study is an exhaustive one.

Dr. Rudolf Stahlecker, who was a member of the Second Marshall Field Paleontological Expedition to Argentina, has prepared and submitted notes on the stratigraphy and tectonic features of certain fossil-bearing formations of the Province of Catamarca, Argentina. These observations now await publication. They are not only a new contribution to science but also serve to establish the horizons from which the Museum collections were obtained.

Other studies of the South American collections which were carried nearly to completion during the year include one of a new carnivorous marsupial and another of a rare ground sloth and related species. Through arrangements with the American Museum of Natural History, New York, studies of the South American fossil mammals of pre-Santa Cruz age are to be shared by the two institutions, the American Museum to devote itself to mammals of the two lower, and Field Museum to those of the two upper horizons of that period. In pursuance of this plan an exchange of specimens for purposes of study has been made between the two institutions by virtue of which the American Museum has loaned 119 specimens and Field Museum 126 specimens.

A Museum leaflet entitled *The Geological History and Evolution of the Horse* by Associate Curator Riggs was published during the year. This leaflet contains, in addition to anatomical comparisons of the horses of various geological periods, an account of the more important branches of the horse family, of the climatic conditions under which horses of extinct types have lived, of their food, the influence of these factors upon the development of the animal, the migrations of various branches of the family over the world, and the probable causes of their extinction.

A paper on "The Upper Molars of *Canis ambrusteri*" by Assistant Patterson was published in the *American Journal of Science* during the year. Papers by Associate Curator Henry W. Nichols and Phil C. Orr on "Bakelite Impregnation of Fossil Bones," and by Mr. Nichols and Assistant Curator Sharat K. Roy on "Preparation of Micro-fossils" were published in the *British Museums Journal*.

Work on the collections of invertebrate fossils made by the Second Rawson-MacMillan Subarctic Expedition (1927-28) has been continued by Assistant Curator Roy, and all the more important groups, except a few species of gastropods and bryozoans, have been examined and described. Eleven new species have been discovered, in addition to twenty-five previously reported. Included in this work, besides superficial cleaning and preparation of a large number of specimens, has been the grinding and polishing of thirty sections of fossil corals and one of a fossil cephalopod.

Articles contributed by members of the Department staff to *Field Museum News* totaled fourteen signed contributions and a similar number of briefer, unsigned notes.

Curator Oliver C. Farrington addressed a special meeting of the Milwaukee Astronomical Society held at the Museum November 13, on the subject of meteorites and the Museum's large model of the moon. A special meeting of the Western Society of Engineers held at the Museum on September 24 was addressed by Associate Curator Nichols on the economic minerals of Illinois as compared with those of the world.

Dr. Elias Dahr, of the University of Lund, Denmark, spent a few days in the Department in the study of fossil carnivores, and Dr. Remington Kellogg, of the Carnegie Institution of Washington, D.C., made further studies here on a fossil whale. Other visiting scientists included Dr. Henry Fairfield Osborn, Mr. Barnum Brown, Mr. Walter Granger, and Dr. G. G. Simpson, of the American Museum of Natural History; Mr. C. W. Gilmore, of the United States National Museum; and Dr. Harry Berman, of Harvard University.

Requests from correspondents and visitors for information and for identification of specimens were received as usual in large numbers, and were attended to as quickly and fully as possible. There were 376 correspondents and 239 visitors referred to the Department during the year. Specimens brought or sent for identification were chiefly invertebrate fossils, 686 of these being determined. Of minerals and supposed meteorites 221 were determined.

ACCESSIONS—GEOLOGY

While the number of accessions was not as large as in some previous years, many interesting and important additions were made to the collections by gift, exchange and purchase. Mr. William J. Chalmers, of Chicago, added to the crystal collection,

which has been brought to such a high standard of excellence through his long continued gifts, a quartz geode, twenty-two inches in diameter. It weighs 125 pounds, and is filled with brilliant quartz crystals. Other gifts to the collection by Mr. Chalmers were an unusually large and transparent crystal of sphalerite from Boulder, Colorado, and a specimen of a new habit of crystallized mimetite from Tsumeb, Southwest Africa. He also gave, from the so-called Petrified Forest in Arizona, two specimens of petrified wood which show unusual colors for that occurrence.

An important gift received from Dr. B. E. Dahlgren, Acting Curator of the Department of Botany, included seven specimens of diamonds in matrix obtained by him at Dattas, Minas Geraes, Brazil. Besides the value of the diamonds themselves, the specimens are of unusual interest in showing the diamonds associated with the rare minerals lazulite and cyanite. Three specimens of another matrix in which diamonds occur at the same locality, probably an alteration product of the lazulite, were also included. Besides these, Dr. Dahlgren presented fifteen specimens of the rare mineral euxenite, notable for its composition of rare earths.

Mr. Herbert C. Walther, of Chicago, added to the collection of rare metals in elemental form, to which he had previously liberally contributed, specimens of metallic potassium, sodium, manganese, uranium and cerium. He also presented some elemental phosphorus, ores of caesium and tantalum, a specimen of ferrocerium alloy and seventeen garnets.

Additional specimens illustrating the minerals of Arkansas, of which Mr. Frank von Drasek, of Cicero, Illinois, had previously been a generous donor, were given by him in the form of five fine quartz crystals, twenty-two pearls from the Little Missouri River, and some small crystal chips. Mr. von Drasek also presented some carved turquois from the Zuni, New Mexico, Indian reservation, the carvings representing birds and animals. The above-mentioned gifts comprise a total of thirty-seven specimens. Also, as a result of recent visits to some of the more important mining localities in New Mexico, Mr. von Drasek obtained, partly by his own collecting and partly by gifts from local officials, sixty-nine specimens of minerals, ores, and fossils which he kindly presented to the Museum. Important specimens in this gift include some of the potash-bearing mineral polyhalite as found at Roswell; specimens of the Hanover zinc ores and silver; and gold ores and volcanic ash from the region of Silver City.

A large mass of pure gilsonite in the form of a two-foot cube, and about forty smaller specimens of the same mineral, all from Cuba, were presented by the Central Commercial Company, of Chicago. Both the large mass and the smaller specimens are remarkable for the high purity of the material.

Mr. Le Roy P. Guion, of Newton, Massachusetts, presented to the Museum for permanent possession, a large, etched section of the Seneca Falls meteorite which had been loaned to the institution many years before by his father, the late General G. Murray Guion. Interesting correspondence in connection with the meteorite and its study by Professor Charles U. Shepard, of Amherst, and Professor Benjamin Silliman, of Yale, the leading mineralogists of their day, was an appreciated addition to the gift.

From Dr. C. T. Elvey, of the Yerkes Observatory, Williams Bay, Wisconsin, there were received as a gift, two specimens of the iron meteorites which occur at Odessa, Texas, in connection with the crater of problematic origin to be seen there. Of this occurrence the Museum previously had no specimens. The two presented include one of an unaltered meteorite, and one of the so-called "iron-shale" which is formed by oxidation of the meteorites. As the topography and distribution of the Odessa meteorites resemble in many ways the corresponding features at the well-known locality of Canyon Diablo, Arizona, the possibility that the crater was formed by the fall of a large meteorite at Odessa is indicated.

There were also received, by gift from Mr. N. H. Seward, of Melbourne, Australia, specimens of meteorites from another "meteor crater" not previously represented in the Museum collection. These specimens, in the form of two typical individual meteorites, are from the craters at Henbury, Australia. A cast of the Santa Fe meteorite, illustrating its peculiar shape, was another welcome addition to the meteorite collection, coming as a gift from the United States National Museum, Washington, D.C.

Two valued additions were made to the Museum's series of copper masses distributed by glacial action, in the gift of a seventeen-pound copper boulder from Columbus, Wisconsin, received from Mr. Carl Pickhardt, of Chicago, and a seven-pound mass found at Oglesby, Illinois, presented by Mr. Leonard Pryde, of Oglesby.

Mr. Arthur Roat, of Red Lodge, Montana, contributed fourteen specimens of the rare mineral mesolite. These specimens represent a new locality for this mineral.

Twenty specimens of phlogopite and other micas from Laurier County, Quebec, presented by Mr. Frank Spaak, of Chicago, afford a series illustrating valuable, newly discovered deposits of mica in this remote locality. Mr. Spaak also gave seven specimens of other minerals from the locality, these being chiefly talc, apatite, and corundum.

A number of shells of the pearl oyster and one pearl weighing seventeen grains, from the Tuamotu Archipelago, French Oceania, were presented by Mr. Edward A. Zimmerman, of Chicago, who collected them. They afford a valuable illustration of the pearl fisheries in that portion of the globe.

Six crystallized specimens of the rare minerals, tennantite, colusite, and enargite, from Butte, Montana, were presented by Mr. Blair W. Stewart, of South Bend, Indiana. Mrs. A. H. Roper, of Oak Park, Illinois, presented a large specimen of mica schist containing many well-formed crystals of staurolite, which she found near Rausin Lake, Wisconsin. A specimen of the highest grade of glass sand, and one of testing sand, from the important deposits at Ottawa, Illinois, were presented by the Ottawa Silica Company.

Mr. Stafford C. Edwards, of Colton, California, gave four specimens of the remarkable maul-shaped concretions which occur at that locality. They are the largest of this type that have yet been received. Another group, numbering eleven specimens, of interesting compound concretions showing unusual forms was received from Mrs. J. T. Stewart, of Chicago. They were obtained near Grand Junction, Colorado. From Mr. A. T. Newman, of Bloomer, Wisconsin, there were received by gift thirty limonite concretions of an unusual type found in the vicinity of his home, as well as four specimens of the Devil's Hill, South Dakota, sand-calcite concretions.

A skull and jaws of the rare horned fossil gopher *Ceratogaulus*, an extinct type of rodent of which only a very few specimens are known, was included in a gift from Messrs. Thompson Stout and Ed. Hartman, of Lewellen, Nebraska. Added to this gift were three teeth of the fossil horse, *Pliohippus*, and a bone of the fossil rhinoceros, *Teleoceras*.

To several groups of collaborators the Museum is indebted for a number of specimens of fossil plants and invertebrates collected by them in various localities in Illinois. One group, which included Mr. and Mrs. J. R. Below, Miss Nan B. Mason, and Mr. Bryan Patterson, all of Chicago, presented collections they assembled at Galesburg, Illinois, of ninety-one fossil plants and five fossil shark

spines. The same group, from collections made in the neighborhood of Sag Canal, Illinois, presented forty-nine invertebrate fossils.

Mr. Henry Field, of the Department of Anthropology, and Messrs. Bryan Patterson and Sharat K. Roy, of the Department of Geology, presented 150 specimens of the rare fossil worm, *Lecthaylus*, and 198 specimens of trilobites, graptolites, and other invertebrates, which they collected at Blue Island, Illinois. Messrs. Field and Patterson also presented nine specimens of invertebrates, chiefly remains of trilobites, which they collected at Racine, Wisconsin. Mr. Frank Letl, of the Department of Zoology, Mr. Thomas J. Newbill, Jr., of La Grange, Illinois, and Mr. Patterson presented forty-eight specimens of invertebrate fossils, collected by them at Danville, Illinois. Messrs. Patterson and Roy gave twenty-three specimens of cephalopods and brachiopods of Devonian age collected at Milwaukee, Wisconsin.

From an expedition to Plateau Creek, Colorado, conducted by Messrs. Patterson and Newbill, there were received a large part of a skeleton of the rare amblypod, *Titanoides*, a part of the carapace of a fossil turtle, the front portion of the snout of a fossil crocodile, and three specimens of invertebrate fossils.

From the United States National Museum, a skull of the large fossil peccary, *Platygonus cumberlandensis*, was received by exchange. This affords a highly valued representation of the occurrence in the United States of this type of mammal now found chiefly in South America. A representative slice of the Cotesfield meteorite, and a cast showing the form of the whole meteorite, were obtained by exchange with the Colorado Museum of Natural History, Denver. An exchange with Professor H. H. Nininger, of Denver, enabled the Museum to add a complete slab of the Tlacotepec, Mexico, meteorite to the collection. This slab is polished and etched and shows well the peculiar etching figures of the meteorite. A fine specimen of millerite on calcite from St. Louis was obtained by exchange with Mr. E. M. Gunnell, of Galesburg, Illinois.

The only addition to the collections obtained by purchase was a polished section of South American agate which shows unusual natural colors.

CATALOGUING, INVENTORYING, AND LABELING—GEOLOGY

New entries recorded in the Department catalogues, now comprising twenty-six volumes, totaled 991 during 1932. These added to previous entries give a total of 190,399. More than half of the

new entries were those of fossil plants and invertebrates; the remainder were chiefly of ores and minerals. Forty-four catalogue cards of fossil vertebrates were written. The total number of cards written in 1932 was 7,188.

Preparation of copy for new labels, and for replacing those on black cards with buff-colored ones, was carried on continuously through the year, and a total of 1,807 were written and sent to the Division of Printing. Forty-four of these labels were descriptive. When the labels prepared during the year are printed and installed the labeling of the exhibits in Frederick J. V. Skiff Hall (Hall 37) will be completed. In order to afford information regarding the exhibits until the permanent labels are ready, 396 temporary typewritten labels were made and installed in that hall. Thirteen labels were received during the year from the Division of Printing.

The number of photographic prints added to the Department albums was 102, bringing the total of such prints to 7,480. Labels for all prints were prepared and filed with them. New United States Geological Survey maps numbering 337 were received, filed and labeled, making a total of 3,753 of these maps now available.

INSTALLATIONS AND REARRANGEMENTS—GEOLOGY

The large geode presented by Mr. William J. Chalmers was installed in Hall 34 in a special case made in the Department.

In Clarence Buckingham Hall (Hall 35) the lodestone from Utah with its accessories, and a large concretion from South Dakota, both of which hitherto had been exhibited in the open, were provided with special cases, also made in the Department.

In Hall 36, devoted to coal, oil and non-metallic minerals, the contents of twenty-two cases in the west half, which had been disarranged in moving them to make repairs, were removed, the interiors of the cases cleaned, and the specimens and labels reinstalled. One case containing talc and bentonite, one of fuller's earth, three of silica, two of graphite, one of asphalt, one of oil shale, and one of peat were also cleaned and the contents reinstalled.

To the case in Hall 36 containing large specimens of coal and asphalt, the fine series of specimens of gilsonite presented by the Central Commercial Company was added, space for the addition being obtained by withdrawing some less important material. Seven temporary descriptive labels were installed in this case. In other cases in the hall 250 labels were installed, and in seven cases of petroleum 398 newly printed labels were installed. Since the

jars of petroleum on exhibition sometimes lose some of their contents by expansion of gases during the heat of the summer, these jars, 400 in number, were all sealed with transparent gelatine to prevent further losses.

In the same hall, the large trunk of a fossil tree from the coal measures, hitherto exhibited uncovered, was in danger of damage from too much handling by visitors. Accordingly, a case made in the Department workrooms was provided for it. A large painting showing a section of the Minnesota iron mine was renovated and hung on the west wall of the hall over the large model of the Chandler iron mine.

Many of the locks on the cases in Hall 36 having been found to be so badly corroded that they were unserviceable, 130 were repaired. Plans for a new exhibit of liquid petroleum products to replace the present one which occupies a large case in the center aisle of the hall have been prepared with the cooperation of Mr. C. G. Kustner of the Standard Oil Company (Indiana). Much of the material for the new exhibit has been assembled, and detailed studies are now under way to determine which of a number of possible methods of exhibition will produce the most effective display.

Reinstallation of Frederick J. V. Skiff Hall (Hall 37), which has been in progress for more than two years, has been completed except for replacing about 2,000 of the old labels with new buff ones. Copy for the new labels has been prepared. At the beginning of the year nineteen cases of ores of the precious and heavy metals remained to be installed. These cases were emptied and their interiors repainted to conform to the new buff color now standard for case interiors. All specimens before reinstallation were cleaned and checked. They were also compared with the specimens of the reserve collections to make sure that the most suitable specimens from both collections were included in the exhibits. Changes in the mineral industry since the time of the original installation made more than 200 such exchanges desirable.

Although the general arrangement of the collections remains substantially as before, the order of the specimens in each case has been changed to secure a better grouping and a more attractive display. The copper ore collections have been enlarged, and the exhibits of zinc ores and of precious metal ores of Colorado have been reduced. The aluminum ores have been given additional space and a prominent position, consistent with their present importance. Since the exhibit of ores of the rare elements has



MURAL PAINTING, AFRICAN REPTILES OF PERMIAN TIME

Ernest R. Graham Hall (Hall 38)

Gift of Ernest R. Graham. Painted by Charles R. Knight

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always attracted special attention, and the industrial importance of these ores has greatly increased in the past few years, and promises to increase still more in the immediate future, this exhibit was revised and enlarged until it occupies, besides its original space, that formerly devoted to the aluminum ore collection, and some secured by curtailing the arsenic and antimony exhibits.

The labeling of the nineteen cases required replacing of 2,085 of the old-style black labels with new labels. Advantage was taken of the necessity of reprinting these to check them thoroughly for possible errors and omissions, and in many instances to improve the phraseology. It has also been possible at times to provide new and more important data. The legibility of many labels has been increased by the use of larger type, a change made possible by omitting unimportant facts.

Extensive revision was also made of the numerous large explanatory labels which have always been an important feature of the exhibits in Skiff Hall. Great advances in the knowledge of ore deposits, and many changes in the mineral industry, had made many of these labels obsolete and additions to their number desirable. Accordingly, the texts of the former labels were completely rewritten and such new ones as were necessary were prepared. Copy for 103 large descriptive labels was newly prepared. Some required little or no change, but the preparation of many of them involved much research in periodical literature and texts of recent date, in addition to the work of condensing the information into a suitable form. The new information was so important in some instances that forty of the old labels were discarded and temporary typewritten labels substituted. Specially drawn maps, showing the locations from which many of the specimens were obtained, have been introduced into the cases wherever they seemed desirable. Twenty-seven of these were made and installed during the year.

The part of Skiff Hall reinstalled this year contains exhibits of which the following is a brief summary:

One case of tin, nickel, and cobalt ores: In these the number of South American and African tin ores has been materially increased. A series of specimens in the base of the case also illustrates the more important uses of these metals and their compounds.

One case of ores of the rare elements and minor metals: This includes ores of beryllium, bismuth, cadmium, cerium, columbium, molybdenum, radium, selenium, tantalum, tellurium, thorium, titanium, uranium, vanadium and zirconium. In the lower part

of the case ores of arsenic and antimony are shown. Fourteen of the elements are shown in metallic or elemental form. Some uses of these ores are illustrated also.

One case of which foreign zinc ores occupy two-thirds of the space and a collection of ores of aluminum the remainder: Although the dull aspect of the aluminum ores and their close resemblance to each other give this collection a somewhat monotonous appearance, it was decided that the importance of the metal made a more prominent display imperative. After some study it was found possible to prepare a revised and enlarged collection in which the monotonous aspect is largely overcome. In the new exhibit some little-used ores, such as leucite from which aluminum is obtained in Italy, and some of the alums native to South America, especially alunogens collected by the Marshall Field Expeditions, are included. As the smelting of aluminum from clay is frequently suggested, a clay rich in this metal is shown, with an explanation of the reasons why use of clay as an ore of aluminum has not as yet been profitable.

One case of zinc ores of the United States: This includes more of the ores of the Rocky Mountain region and the far west than formerly—a change which comports with the present increased importance of the ores of these regions. This case also contains a synoptic collection of zinc-bearing minerals preceding the geographically arranged collection. Formerly this synoptic collection consisted of a single typical specimen of each zinc-containing mineral of economic importance, and a group of substances such as metallic zinc, sulphur, silica and water assembled in glass tubes to show the quantity of each present in each mineral. As these minerals occur in a number of forms differing in color, texture and other features, it was believed better to replace the old synoptic collection by an enlarged one which shows specimens of each of these varieties.

Two cases of copper ores: Additions of South American and African ores have been made to these.

The gold, silver and lead ore exhibits: One case now contains specimens from a number of the celebrated bonanza silver mines of Chile, obtained by the Marshall Field Brazilian Expedition. These bonanza mines have been worked out and are for the most part inaccessible on account of caved-in workings, so that the Museum is fortunate, because of the historic importance of these ores, to be able to display examples of them. One-third of one case is occupied by a model of a gold stamp mill. The rest of the case contains gold and silver ores from California and Arizona. One-third of another

case contains a model of a gold mine. Most of the rest of the case contains Colorado gold ores. Two shelves of the case hold placer gold ores which were formerly scattered through the collections. All the placer gold specimens except those from Alaska are now segregated.

Ores from two celebrated mining regions, Leadville, Colorado, and the Comstock Lode of Nevada, occupy another case. Still another case is devoted to lead ores from the central and eastern parts of the United States. Half of this case is filled with special collections. These include specimens: (a) of all minerals which contain gold; (b) of minerals which contain silver; and (c) of minerals which contain lead. Another collection illustrates "fools' gold" and consists of those minerals which have frequently been mistaken for gold, with examples of real gold for comparison. In this case is also illustrated the panning of gold, the exhibit consisting of a laboratory-size gold pan or batea and examples of crude gold ore, with separated gold and waste in the pan with the gold.

Gold, silver, and lead ores from Washington, Oregon, Idaho, Georgia and the Carolinas occupy another case. There are also exhibited here two drill cores of unusual length, showing how specimens of rock from far below the surface can be obtained by drilling. The ores of Montana, Dakota, and Utah fill half of another case. The other half contains gold, silver and lead ores of Canada and includes many specimens from the rich mines of Cobalt and other districts of northern Ontario.

Altogether, six table cases have been reinstalled. Two of these contain miscellaneous examples of gold and silver ores in specimens of large size. Another case contains a collection showing the intermediate and final stages of a complex method of separating silver from lead, as practised in a large German refinery. The specimens are so arranged and correlated by lines drawn on the floor of the case that the process can readily be followed.

Another case contains illustrations of the methods of saving gold and silver wastes as practised in a large jewelry shop. A large collection of alloys of gold and silver with other metals occupies a fifth case. The sixth table case contains two models illustrating metallurgical processes. One is a simple type of cyanide mill for extracting gold from its ore. As the modern cyanide mill is so elaborate and its processes so complex that the casual visitor would find it hard to understand them from inspection of a model of a modern mill, the model represents a type of primitive mill now

obsolete which is so simple that the fundamental features of this important process can be readily and quickly grasped. The other model in this case represents a blast furnace for smelting lead ores. It is accompanied by specimens of everything that goes into and comes out of such a furnace.

To Ernest R. Graham Hall (Hall 38) two exhibition cases have been added, and twelve cases have been rearranged either as to position or contents, or both. Of the additions, the most important is that of a habitat group containing mounted skeletons of the rare South American ground sloth of Pliocene time, *Pronothrotherium*, and a contemporary glyptodont, *Sclerocalyptus*. These are shown against a background illustrating, partly in bas-relief, a typical environment of each. The specimen of *Pronothrotherium* is of special interest because it is the first nearly complete skeleton of this genus so far discovered. This sloth was comparable in size to a grizzly bear, and was closely related to the Pleistocene sloth, *Nothrotherium*, found in North America. The skeleton is mounted in an upright position, suggesting the attitude of the animal while feeding upon the foliage of a tree. That of the glyptodont is represented in a habitat of low vegetation. Both specimens were collected by the Marshall Field Paleontological Expedition to Argentina and Bolivia (1926-27).

In addition to the *Pronothrotherium*, specimens of the Miocene sloths, *Hapalops*, *Peleciodon*, *Nematherium*, *Planops*, and *Analcimorphus* were placed upon exhibition. A skull of the giant sloth, *Lestodon*, from the Pleistocene formations of Bolivia, has been added to the large series of skulls of members of this extinct group of ground sloths. This series is now one of the most extensive to be seen in any museum.

Among specimens representing other South American fossil mammals placed on exhibition during the year, selected from material collected by the Marshall Field Expeditions, are: skulls of the small pseudo-camel, *Cramauchenia*; of the large rodent-like *Eutrachytherus*; of the primitive hoofed animals, *Rhynchippus* and *Leontinia*; of the Pliocene pseudo-camels, *Promacrauchenia* and *Scalibrinitherium*; of the great raccoon, *Amphinassa*; of the large, rodent-like *Tachytypotherium*; of the large armored mammal, *Panochthus*; and of the strange, horse-like *Hippidion*.

Specimens of North American fossil mammals added to the exhibits during the year included skulls of a small, primitive dog, *Cynodictis*, and of the strange, horned gopher, *Ceratogaulus*, both

of the Miocene period, and a skull of the large fossil peccary, *Platygonus*, from a Pleistocene bone-cave of the Cumberland Mountains, Maryland. In all, specimens of fifteen genera of South American fossil mammals and three genera of North American fossil mammals, none of which were previously exhibited, have been added.

The large stump of a fossil tree of Devonian age in Graham Hall was provided with a case made in the Department in order to prevent injury from handling by visitors.

Some minor additions were made to the exhibits of invertebrate fossils in the hall, these including some of the fossil worm, *Lecthaylus*.

In the paleontological laboratory, although the quantity of work accomplished has suffered somewhat from reduction of the number of persons employed, activity has steadily continued and a large amount has been achieved. Attention has been paid chiefly to preparation of the large and valuable collections of South American fossil mammals gathered by the Marshall Field Expeditions (1922-27). This work included preparation of specimens not only for exhibition and mounting, but also of rare but fragmentary specimens for study and description. The principal specimens prepared for exhibition were skulls of *Cramauchenia*, *Eutrachytherus*, *Rhynchippus*, *Leontinia*, *Promacrauchenia*, *Scalibrinitherium*, *Amphinassa*, *Tachytypotherium*, *Panochthus*, and *Hippidion*; and mounted skeletons of *Pronothrotherium* and *Sclerocalyptus*. All of these have been installed in Graham Hall, as previously mentioned.

The laboratory equipment was increased by adding a metal-working bench with tool cabinet, a plaster bin, and a cabinet table fitted with a metal-lined cupboard containing five drawers. This equipment was all designed and constructed in the Department. The stored specimens in Room 101 were rearranged and all material no longer of value was removed.

In the chemical laboratory, tests were made, as needed, to determine the composition of specimens submitted for Museum purposes and by visitors. These included qualitative analyses of several specimens of iron submitted as being of possible meteoric origin, and a partial analysis of a rare mineral obtained in Brazil by Dr. Dahlgren of the Department of Botany. For the Department of Anthropology the composition of a llama figurine was determined. Analyses were made of seventeen varieties of paper in order to determine their suitability for use by the Divisions of Printing and Photogravure. These analyses included determinations of the composition of the papers and tests of the rate of their discoloration by age.

The composition of a coating on the tubes of the Museum boilers was determined in order that methods of removing it and preventing its further deposition might be devised. All of the above determinations were made by Associate Curator Nichols. He checked also by measurement with a planimeter the flow meter charts, which record the quantity of steam in the Museum boilers. The still which provides distilled water for the lecture hall and for the Divisions of Photography and Photogravure having developed leaks and accumulated scale, necessary repairs were made to it. This was done without interrupting the supply of distilled water. For the ventilator over the principal work bench and over the motor which furnishes the draft for the chemical hood, dampers were made and installed to control the ventilation. All the metal piping of the hood and work desks was thoroughly cleaned of rust, and coated with non-oxidizing paint.

DEPARTMENT OF ZOOLOGY

EXPEDITIONS AND RESEARCH

Three zoological expeditions were in the field during the year, all of them continued from 1931 and all of them brought to conclusion in 1932. These were the Marshall Field Zoological Expedition to China, the Mandel-Field Museum Zoological Expedition to Venezuela, and the Delacour Indo-Chinese Expedition.

The Marshall Field Zoological Expedition to China, under the leadership of Mr. Floyd T. Smith, of New York, had begun its work in 1930, and continued practically until the end of 1932, when it was terminated after more than two years of uninterrupted operation in central and western China. This expedition, as noted in previous Reports, depended largely upon the training and organization of Chinese collectors, Mr. Smith being the only white man connected with it. In January, 1932, collectors were working in several camps, one on the Lolo border southwest of Kiating, one in the mountains above Chengtu, and one south of Chungking, while individuals were working out from Kiating and Suifu. In February, leaving these operations under way, Mr. Smith returned to Shanghai carrying some 1,700 specimens for shipment. Although this was about the time of the bombardment of Shanghai, the disturbed conditions did not prevent the dispatch of these specimens to America and the purchase of new equipment necessary for continuation of field work. Much assistance was received from Dr. Tsai Yuan Pei, President of the Academia Sinica, and Dr. T. H.

Chien, Director of the Metropolitan Museum of Natural History of Nanking. As a slight acknowledgment of their courtesies, selected duplicate specimens from the first shipment of the year were returned after examination and identification to the Metropolitan Museum for permanent preservation in China.

Returning up the Yangtze River in March, Mr. Smith reorganized the Chinese collectors by transferring a number of them to the region south of Fuchow (on the Yangtze) near the border of the province of Kweichow. In August most of the parties disbanded and Mr. Smith proceeded to Shanghai with all specimens collected to date, leaving several men at work on details until the end of the year. The final shipment from Shanghai went forward October 28 and Mr. Smith sailed for America a few days later. The collections shipped during 1932 total 6,868 specimens and cover all branches of vertebrate zoology. Among the larger mammals may be mentioned a giant panda, this being the third well-prepared specimen to reach Field Museum. There is also a series of seven Chinese takin, which furnishes material for a large habitat group. All the better-known animals of central China are well represented, and many rarities are included. Careful study of the many large series will no doubt reveal a number of novelties as well as much information of value.

The Mandel-Field Museum Zoological Expedition to Venezuela may be regarded as wholly an expedition of the year 1932, for, although organized in 1931, it did not sail until December 29 of that year and all of its accomplishments were made in 1932. The expedition set out on the yacht *Buccaneer* with a personnel consisting of Mr. Leon Mandel II, leader, Mr. Fred L. Mandel, Jr., Mr. Emmet R. Blake, ornithologist, representing Field Museum, Mr. Jack Barnett, photographer, Dr. Robert Dwyer, physician, and Captain Hiorth, master.

During the passage across the Caribbean, the yacht called at Havana, Cuba; Port de Paix, Haiti; Martinique; and Port of Spain, Trinidad. At the last-named port final arrangements for the ship to proceed up the Orinoco River to Ciudad Bolivar were made through the courtesy of the American and the Venezuelan consuls. Several overnight collecting stations were established in the delta region, and specimens were secured. After several weeks in this area, the yacht *Buccaneer* and the Messrs. Mandel returned to the United States, leaving Mr. Blake to continue the scientific work of the expedition. His objective was Mount Turumiquiri, north-

easternmost outpost of the Andean chain and of great importance from a faunistic point of view. During two months collections were made in the tropical and subtropical zones on the slopes of the mountain. Representative series were obtained of all the endemic birds and small selections of mammals and reptiles. Mr. Blake's single-handed achievement of collecting and skillfully preparing more than 800 birdskins in five weeks in the mountain rain forests is an enviable record. A report on this collection is now in course of preparation.

The Delacour Indo-Chinese Expedition, which sailed from Marseilles in November, 1931, had planned to continue until May, 1932, but owing to illness in the party its active work was terminated about the first of February. In the months of December and January, however, very effective collecting was carried on, mainly about the Boloven Plateau in southern Laos. The work was personally directed by Mr. Jean Delacour, who was accompanied by Count G. de Germiny. The collection obtained numbers 2,008 birds and 219 mammals and includes the types of eight new birds and one new mammal. It forms a valuable extension of the collections previously received by Field Museum from the Indo-Chinese region.

A privately conducted expedition to Africa and India was carried out during the year by Messrs. John McLaren Simpson and A. Watson Armour III, accompanied for part of the time by Mr. James Simpson. This expedition obtained a large variety of game animals of which selected specimens were presented to the Museum.

Members of the Department staff conducted much research work during the year.

Six publications were issued in the Museum's Zoological Series, as follows: *The Birds of Chile*, a volume of 472 pages by Dr. Charles E. Hellmayr, Associate Curator of Birds; *Reptiles and Amphibians of the Mandel Venezuelan Expedition*, by Mr. Karl P. Schmidt, Assistant Curator of Reptiles; *Notes on New Guinean Crocodiles, and Reptiles and Amphibians from the Solomon Islands*, both also by Mr. Schmidt, and containing reports on collections made by the Cornelius Crane Pacific Expedition of Field Museum (1928-29); *Mammals of the Kelley-Roosevelts and Delacour Asiatic Expeditions*, by Dr. Wilfred H. Osgood, Curator of the Department of Zoology; and *Birds of Western China Obtained by the Kelley-Roosevelts Expedition*, by Mr. Outram Bangs, who until his recent and lamented death



GIANT SABLE ANTELOPE

Carl E. Akeley Memorial Hall (Hall 22)

Presented by Arthur S. Vernay. Taxidermy by C. J. Albrecht

in September, 1932, was the curator of birds at the Museum of Comparative Zoology, Cambridge, Massachusetts.

In his studies of some 3,000 specimens collected by the William V. Kelley-Roosevelts Expedition to Eastern Asia for Field Museum, and the Delacour Expedition to French Indo-China, Dr. Wilfred H. Osgood, Curator of Zoology, found nineteen hitherto unknown species or sub-species of mammals. One of the most important is a muntjak or tropical deer which Dr. Osgood has named *Muntiacus rooseveltorum* in honor of Colonel Theodore Roosevelt and Mr. Kermit Roosevelt, leaders of the expedition which obtained it. Another of the more important new animals is a handsome black and white monkey with a long bushy tail which was named "Delacour's langur" in honor of Mr. Jean Delacour, noted French zoologist who conducted the other expedition.

Members of the zoological staff contributed eleven signed articles to *Field Museum News*, and furnished information for some thirty other items.

Manuscript has been completed by Dr. Hellmayr for Part VII of the *Catalogue of Birds of the Americas*, and Part VIII is well under way. A report by Dr. A. W. Herre, of Stanford University, on the fishes obtained by the Crane Pacific Expedition also is in hand, as well as two shorter papers describing new fishes, one by Dr. Herre, and one by Mr. Alfred C. Weed, Assistant Curator of Fishes at Field Museum. Curator Osgood has in preparation a study of Chilean mammals. Mr. Rudyard Boulton, Assistant Curator of Birds, redetermined the identification of many specimens in the Museum and is engaged in revisionary studies of certain genera of African birds. Assistant Curator Schmidt has completed the manuscript for a leaflet on *The Turtles of the Chicago Area*. By the same author a report has been prepared on reptiles and amphibians of the Canal Zone, based on material collected in cooperation with the Smithsonian Institution. Only preliminary work has been possible thus far in most cases on the large collections received from recent expeditions and much material remains to be studied.

Under a fellowship award from the John Simon Guggenheim Memorial Foundation, New York, Assistant Curator Schmidt spent the latter half of 1932 in Europe engaged in a special study of Central American reptiles and amphibians. This involved the examination of numerous type or other specimens of historic importance in the principal museums of London, Paris, Berlin, Vienna, Frankfort, Basel, and Munich.

ACCESSIONS—ZOOLOGY

Zoological specimens were accessioned to a total of 20,640, the largest number in the history of the institution. The average annual number for the eight years from 1925 to 1932, is 13,977. Those of 1932 classify as follows: mammals, 4,845; birds, 6,238; reptiles and amphibians, 3,044; fishes, 1,008; insects, 2,390; lower invertebrates, 3,115. The number obtained by Museum expeditions is 15,523; by gift, 4,185; by purchase, 89; and by exchange, 843. The large accessions from expeditions were mainly from three sources: the Vernay-Lang Kalahari Expedition, from which there were delayed shipments including material actually collected two years ago; the Marshall Field Zoological Expedition to China, which remained at work until November, 1932; and the Mandel-Field Museum Zoological Expedition to Venezuela.

Numerous donors contributed a total of 4,181 specimens to the collections. Acknowledgment of these is to be found in the detailed List of Accessions (p. 380), but a few may be especially mentioned. An important gift from the University of Chicago was that of twelve birds in alcohol, thirty-seven fishes, and 370 reptiles and amphibians, including cotypes of eight species of lizards from the Galapagos Islands. A number of large mammals from Africa and India, including markhor, topi, and wildebeest were presented by Messrs. James Simpson, John McLaren Simpson, and A. Watson Armour III, of Chicago. Mr. Herbert Lang, of Pretoria, South Africa, presented one hundred mammals and sixty-three frogs and lizards from South Africa, supplementing the collections of the Vernay-Lang Kalahari Expedition.

A bison bull of exceptional quality was received from Mr. Wallis Huidekoper, of Twodot, Montana. Preparation of this unusually large specimen has been begun, and it is planned to place it on exhibition in the near future in the collection of horned and hoofed mammals in George M. Pullman Hall (Hall 13).

A collection of 999 Philippine shells, carefully preserved, was presented by Colonel Theodore Roosevelt, Governor-General of the Philippines. Mr. C. Suydam Cutting, of New York, gave 540 insects from Burma and Tibet, collected by Captain F. Kingdon Ward and party. Further collections of insects, mainly butterflies, to a total of more than four hundred, came from the Misses Nellie V. and Rachel W. Haynie, of Oak Park, Illinois. Mrs. H. A. Hoisington, of Olama, Cameroon, gave twenty selected specimens of the huge Goliath beetle from Africa. Gifts of reptiles and

amphibians included nineteen of American species from Dr. Charles E. Burt, of Winfield, Kansas; forty-nine Arabian specimens from Mr. Henry Field, of the Department of Anthropology; and 133 West Indian forms from Dr. Stuart T. Danforth, of Mayaguez, Puerto Rico.

CATALOGUING, INVENTORYING, AND LABELING—ZOOLOGY

Zoological specimens to a total of 10,742 were numbered and entered during 1932 in the departmental catalogues, which now occupy fifty volumes, and contain a total of 177,116 entries. Of the entries for the past year, 3,444 are mammals, 2,131 birds, 1,008 reptiles and amphibians, and 4,087 fishes. A total of 1,180 skulls of mammals were numbered, and the card index of the mammal collection received 2,816 entries on 680 new cards. All uncatalogued birds, numbering nearly 12,000, have been checked and arranged by collection or source in systematic sequence for future cataloguing. The total number of cards written for the Department as a whole is now 43,783, of which 1,680 were added in 1932. Assistance was received, especially in cataloguing, from two volunteers, Mr. E. O. Mellinger, of North Lima, Ohio, who worked eight weeks in the Division of Birds, and Mr. Alfred C. Weed, Jr., of Chicago, who worked nine weeks in the Division of Fishes.

The reference collection of mammals was rearranged to conform to plans for future expansion and to permit the storage of the large accessions of the year without confusion of related groups. The reception and temporary care of the accessions consumed much time.

In the Division of Birds a thorough and extensive reorganization of the reference collection was made, entailing the handling and rehandling of more than 30,000 specimens. To care for accessions, which exceeded those of any previous year, many old-style containers were again brought into service but in such a way that their future retirement can take place without disturbing an orderly arrangement. Type specimens of birds, numbering some three hundred, were segregated and placed in a case where they can receive the special care to which they are entitled. The Museum's collection of birds' eggs was unpacked and made accessible. The specimens of birds in alcohol were brought together and arranged on suitable shelves in Room 99. The collection of bird skeletons was renovated, catalogued, and augmented. Although containing only 289 specimens, this collection now includes skeletons representing seventy-five families, 168 genera, and 207 species of birds.

Work on arrangement of the collection of fishes was continued and a great many specimens which have been unavailable for some years were brought from closed storage and placed in proper position on shelves. In the Division of Insects new acquisitions occupied much time and about one-half of them were pinned, pin-labeled, and distributed to their respective places. Rearrangement of North American grasshoppers in twenty-five new drawers was completed, and similar arrangement of North American beetles was continued. Systematic arrangement of the osteological collections received especial and much needed attention. Bird skeletons, as stated elsewhere, were completely rearranged, and progress was made on other skeletons, including card-indexing, labeling, and assignment to permanent storage positions. Experiments were conducted in utilizing the assistance of dermestids for cleaning skeletons. An insulated metal box, provided with removable trays and electrically heated, was constructed, in which thirty-five skeletons were thoroughly and successfully cleaned by dermestids.

INSTALLATIONS AND REARRANGEMENTS—ZOOLOGY

In the production of new exhibits, the results of the year were exceptional, probably surpassing those of any recent similar period. Four large habitat groups of mammals were completed, including one of unusual size containing twenty-three mammals and a few birds. The Bahaman undersea group, another very large undertaking, also was brought to final stages although not yet placed on exhibition. Much progress was made in the systematic halls, two cases of mammals and three of birds being installed. Many additions were made to exhibits of reptiles, amphibians, fishes, and skeletons.

First to be finished of the large mammal groups was one of the Indian water buffalo prepared from specimens obtained by Colonel Theodore Roosevelt and Mr. C. Suydam Cutting during the William V. Kelley-Roosevelts Expedition to Eastern Asia for Field Museum, (1928-29). Two large buffalo are shown on a river bank with tropical swamps stretching beyond. Partly hidden in tall grass at the edge of the group are three of the small hog deer which frequently associate with the buffalo. Several white "cow herons" also appear and complete a picture of life in southern Asia. The group, which is in William V. Kelley Hall (Hall 17), is the work of Taxidermist Julius Friesser. The background is by Staff Artist Charles A. Corwin.

A group of Alaskan caribou or American reindeer was finished, being the twenty-fourth and last of the groups planned for the Hall



INDIAN WATER BUFFALO

William V. Kelley Hall (Hall 17)

William V. Kelley-Roosevelta Asiatic Expedition, 1929, Taxidermy by Julius Friesser. Background by Charles A. Corwin

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of American Mammal Habitat Groups (Hall 16), thus bringing this hall to completion. The caribou were obtained indirectly through assistance from the Thorne-Graves-Field Museum Arctic Expedition (1929) to which the Museum is also indebted for its group of Pacific walrus. Following the suggestion of the sponsors and leaders of this expedition, Mr. Bruce Thorne, of Chicago, and Mr. George Coe Graves II, of New York, arrangements were made to have the specimens collected by the Alaska Guides, Inc., of which Mr. Thorne is a vice-president, under permit from the United States Biological Survey and the Alaska Game Commission. Five animals appear in the group, standing rather close together, in keeping with their well-known gregarious habits, on a moss-grown ledge, overlooking a wide panorama of treeless mountain tops. The caribou are of the variety known as Stone's caribou, and the scene in which they appear is one characteristic of the mountains of the interior of Alaska. The taxidermy is by Mr. Friesser and the painted background by Mr. Corwin.

Most important of the groups completed during the year is the one known as the "African Water-hole." This is the largest animal group in the Museum and one of the largest groups in the world. It occupies the entire south end of Carl E. Akeley Memorial Hall (Hall 22), and contains twenty-three game animals, mostly of large size, shown as they would appear gathered at a drinking place in southern Abyssinia. Included are five giraffes, a black rhinoceros and its young, several zebras, elands, an oryx, and a small herd of Grant's gazelle. The setting is enhanced by reproductions of a large wild fig tree and several tall, spirelike nests of termites or "white ants." The Museum owes the water-hole group to the Harold A. White-John Coats Abyssinian Expedition of 1929, which was devoted almost exclusively to securing the material and studies necessary for it. This expedition was financed and led jointly by Captain Harold A. White, of New York, and the late Major John Coats, of Ayrshire, Scotland. George G. Carey, Jr., of Baltimore, was another member of the expedition. Taxidermist C. J. Albrecht, who prepared the group, also accompanied the expedition and thus was able to apply direct personal experience to planning and execution of details. The background, extending over an arc forty-five feet wide, was painted by Mr. Corwin.

A further important addition to Akeley Hall is that of an exceptionally fine specimen of the giant sable antelope, presented by Mr. Arthur S. Vernay, of New York and London, sponsor and leader of

the Vernay-Lang Kalahari Expedition in 1930. This specimen, although unaccompanied by others, is of such striking character that it was assigned to space among the groups in Akeley Hall where it makes a handsome appearance. It was mounted by Taxidermist Albrecht.

Another very large undertaking brought to conclusion is the Bahaman undersea group. This rivals the water-hole group in size, and like it has a large central view-glass and two lateral ones. It occupies the west end of Hall O, where general construction is incomplete, and for this reason the group, although finished and glazed, is not yet on public view. It contains the principal results of the Field Museum-Williamson Undersea Expedition to the Bahamas (1929). A section of sea-bottom is shown with a wealth of corals and other fantastic forms of life among which numerous fishes appear. Three large tiger sharks are in central position, one of them attacking a stingray, while smaller fishes are seen scurrying away or cautiously emerging from hiding places in the expectation of getting any fragments that may result from the fray. A large school of amberjacks is seen in the background, and at the sides in the paneled wings are typical assemblages of the brilliant fishes of the reefs. The group was prepared by Taxidermist Leon L. Pray, who made studies of the subjects represented while a member of the Bahaman expedition. The background is by Messrs. C. A. Corwin and Walter A. Weber.

Much progress was made in expanding and improving the systematic exhibits. In Hall 15 two new cases were installed covering synoptically two important families of mammals. The first shows the so-called fur-bearing mammals, including sables, mink, weasels, skunks, otters, badgers and their allies of both the Old and the New Worlds. The second is devoted to the viverrine mammals, including the civets and mongooses, all of which are natives of Asia and Africa. These cases were prepared by Taxidermist Arthur G. Rueckert.

In Hall 21, devoted to systematic ornithology, three new cases were added, two to the foreign series and one to the North American. First of these was a case covering the parrots of the world in which all families and subfamilies of this group of birds are represented. Next was a case of struthious birds, or ostriches and their allies, in which nine specimens serve to represent the principal types of these birds. The specimens were prepared or reinstalled by Assistant Taxidermist John W. Moyer. In the North American series, a case

of large water birds was added, including loons, grebes, petrels, albatrosses, cormorants, and pelicans, mounted by Taxidermist Ashley Hine.

Into Hall 21 was introduced a new method of labeling individual specimens in the systematic collection of birds, designed to give concisely more information about each species than on the labels formerly used. Thus far two cases, those containing the new exhibits of ostriches and of parrots, were equipped with these labels. Each label contains a map indicating the geographic distribution of the bird to which it refers, and a paragraph giving briefly the most salient facts known about the bird. It is hoped in due course of time to extend the use of this type of label to all exhibits in the hall.

A similar innovation was made in Hall 19, devoted to skeletons. In several cases containing reinstalled exhibits of skeletons, individual labels were placed with each specimen, giving the principal facts about the species. On these labels there appear also sketches by Taxidermist L. L. Pray showing the animals as they appear in life.

An American alligator, reproduced in cellulose-acetate, was installed in Albert W. Harris Hall (Hall 18) in a setting including a nest and partly concealed eggs of this well-known reptile. The material for this exhibit was collected near Thomasville, Georgia, by Mr. Herbert L. Stoddard, naturalist and former member of the Museum staff, and Taxidermist Leon L. Walters, who prepared the exhibit. To the same hall there were added thirty-six lifelike reproductions of smaller reptiles and amphibians, eight salamanders, one toad, fifteen lizards, and twelve snakes, also prepared by Mr. Walters. A large number of fishes was prepared for exhibition, but actual installation was confined to a few specimens needed for the improvement of screens already in place. Most important of these were a bonefish and a "permit," from Florida, presented by Colonel Lewis S. Thompson, of Red Bank, New Jersey, and a green moray received from Captain Fred G. Saeger, of Miami, Florida. A fine specimen of the red grouper was also installed. Taxidermist Pray prepared the new fish exhibits.

Osteological exhibits in Hall 19, for which improved cases became available during the year, were subjected to thorough reorganization, which proceeded to an advanced stage. Fourteen cases were reinstalled in systematic order after many skeletons had been remounted, others eliminated as duplicates, and still others newly mounted to fill gaps in the series. This work was done by Assistant Curator Edmond N. Gueret, and his assistant, Mr. Dwight Davis.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

The traveling exhibition cases circulated among the schools of Chicago and certain other local institutions by the Department of the N. W. Harris Public School Extension reached as many, and probably more, children during 1932 than in any previous year, despite the fact that, due to various causes, the number of schools served declined slightly.

At the beginning of the year 360 public schools were open and receiving loans of cases from the Department. At the close of the year the number of schools open and functioning had been reduced to 355. Nevertheless, the total enrollment in the schools that were open remained at approximately half a million pupils. In addition, thousands of other children were reached by deliveries of cases, made on the same bi-weekly schedule as among the public schools, to fourteen parochial and private schools, including the University High School of the University of Chicago. Cases were loaned regularly also to twenty-one other centers including branches of the Y.M.C.A., branches of the Chicago Public Library, Boys' Union League Clubs, and social settlements.

In continuance of the Museum's policy of extending its educational work to the greatest practicable degree, various requests for special exhibits of Harris Extension cases were granted. Twenty-four cases of birds and other zoological subjects were exhibited in the book department of Marshall Field and Company. Fifteen cases were exhibited in a booth especially provided for the purpose at the International Live Stock Exposition in the Union Stock Yards. Twelve cases containing reproductions of native wild flowers were shown in the booth of the Wild Flower Preservation Society at the Flower Show held in the Merchandise Mart. Twelve cases were sent to Camp Algonquin, maintained by the United Charities of Chicago. In addition to those regularly supplied, many requests from schools for loans of cases for use in connection with current instruction, were granted. The Department's two specially constructed trucks traveled more than 11,000 miles in delivering and collecting cases during the year. To the 390 schools and other institutions receiving cases on regular schedule, two new exhibits were furnished every two weeks during the school year.

Forty-three new cases were prepared, and in addition thirty-two others were completely reinstalled, much time being given to collecting and preparing the specimens and other materials needed for

these, and for taking photographs from which painted backgrounds for the cases were made. Although a number of cases were lost due to breakage and vandalism, and to fires in two schools, and while others were withdrawn from circulation for reinstallation, or for other reasons, there remained 1,175 cases available for lending. Duplicate cases are made of popular subjects, and the total number of separate subjects illustrated in these 1,175 cases is 389, of which 276 are zoological, eighty-one botanical, and thirty-two geological.

Much time is required to keep the cases in proper condition, as a natural consequence of their frequent transfer from place to place, and their unavoidable exposure to various conditions. All the cases were cleaned and polished during 1932, and 245 were repaired. All were equipped with steel springs to retain the sliding frames for labels in position, and a start was made on reinforcing the corners of the case label frames, 105 cases receiving this improvement.

New or revised copy was written for case labels treating of 176 subjects, as a preliminary to installing buff-colored label cards in place of the old black ones. In 228 cases installation of the new labels was completed.

As in previous years, hundreds of letters were received from principals, teachers, and pupils expressing their appreciation of the Harris Extension exhibits, and emphasizing the fact that the service of this Department has proved of inestimable benefit as a supplement to the regular classroom studies.

JAMES NELSON AND ANNA LOUISE RAYMOND FOUNDATION FOR PUBLIC SCHOOL AND CHILDREN'S LECTURES

The James Nelson and Anna Louise Raymond Foundation has continued to provide lectures and entertainment programs for children at the Museum and outside in the schools. By means of guide-lecture tours, radio talks and publications it has brought many new friends to the Museum.

ENTERTAINMENTS FOR CHILDREN

Three series of entertainments were offered during the year. As in preceding years, the spring and autumn courses were given on Saturday mornings in the James Simpson Theatre, and the summer series, offered on Thursday mornings during the months

of July and August, was given in the exhibition halls and the Theatre. Following are the programs of the various series:

SPRING COURSE

- February 27—Scenes from the film, "The Vanishing American."
 March 5—Haunts of the Golden Eagle.
 March 12—Glimpses of Mexico; The Battle of the Ants; Builders of an Empire.
 March 19—Rhinos and Bustards; Story of Vincennes.*
 March 26—Switzerland in Summer; Switzerland in Winter; In Batik Land; The Cougar Hunt.
 April 2—A Chicago Boy Goes to Greenland with Captain MacMillan.
 (With lecture by Mr. Joseph N. Field.)
 April 9—A Trip to the Tropics; Sanctuary; Canoe Trails to Mooseland.
 April 16—Your Chicago; Java, the Garden of the East; Marauders of the Sea.
 April 23—Bird Neighbors; The White Owl; The Cuckoo's Secret; Friend Buffalo.
 April 30—Builders of Dams; Beauties of Desert Places; Our Spring Flowers; Lovely Butterflies.

AUTUMN COURSE

- October 1—In Lovely Japan; Japanese Rice Fields; Silken Cities of Japan; An English River.
 October 8—Columbus Discovers Land;* Boro-Bodor and the Bromo.
 October 15—Dangers of Sea Diving; Glimpses of Chinese Life; Chinese Children; Dogs as Actors.
 October 22—From Red Ore to Steamship; Nature's Children.
 October 29—On Wild Life Trails; Daniel Boone Goes West;* Have a Peanut!
 November 5—The Settlement of Jamestown;* Mining of Soft Coal.
 November 12—The Romance of the Reaper.
 November 19—From Limestone to Sidewalk; The Birth of a Chick; Three Scouts on the Moonbeam Trail.
 November 26—Giants of the Grass Family; Down Cape Cod; The Pilgrims.*
 December 3—Around the Year in the Big Woods; Thrills and Spills; Mysteries of Snow; Skiing in Cloudland; A Boy's Christmas Gifts.

* Gift to the Museum from the late Mr. Chauncey Keep.

The summer course was planned especially for the benefit of children who remained in the city during the vacation months. As in the past, the course consisted of special tours in the exhibition halls, and story-hours and motion pictures in the James Simpson Theatre. The programs were as follows:

- July 7—Motion Picture: Winners of the West.
 July 14—Story-hour: Life in the South Seas; Tour: South Seas Exhibits.
 July 21—Motion Picture: Adventures in the Far North.
 July 28—Story-hour: Queer Birds of Other Lands; Tour: Bird Exhibits.
 August 4—Motion Picture: Glimpses of South America; Tour: South American Exhibits.
 August 11—Motion Picture: Animals at Play and Rest.

In addition to the two regular courses of entertainments and the summer series, two special programs were offered during February as follows:

February 12—Lincoln's Birthday Program: My Mother; My First Jury; My Native State.

February 22—Washington's Birthday Program: Gateway to the West;* Yorktown;* Washington Becomes President.*

* Gift to the Museum from the late Mr. Chauncey Keep.

In all, twenty-eight different programs were offered free to the children of the city and suburbs during the year, and the total attendance at the entertainments in the Theatre was 46,181. At the ten spring programs the attendance was 13,261, and at the ten autumn ones 18,579. At the two special programs the attendance was 7,905. During the summer course the total number of groups handled was twelve, and the attendance was 7,642, of which 6,436 represents the Theatre attendance, and 1,206 the special tour attendance.

The number of large groups from surrounding communities increased noticeably during the year. Settlements and community centers also have been more regular in sending groups. Parent-teacher associations and other civic organizations have taken special interest in distributing programs and chaperoning children to the Museum. As in the past, both newspapers and radio stations have given publicity to the programs whenever possible. The following have been most helpful in placing the programs before the public: *Chicago Daily News* and Radio Station WMAQ; the *Chicago Tribune*; Radio Station WCFL; the *Chicago Evening American*; the *Chicago Herald and Examiner*; the *Chicago Evening Post*; and the *Prairie Farmer* and Radio Station WLS.

An expression of appreciation for films loaned for the programs is due to the United States Department of Agriculture, the General Electric Company, the Department of the Interior of Canada, the International Harvester Company, the Chicago Academy of Sciences, the United Fruit Company, and the Commonwealth Edison Company.

MUSEUM STORIES FOR CHILDREN—RAYMOND FOUNDATION

Two series of Museum Stories for Children were written by members of the Raymond Foundation staff, and copies were handed to all attending the entertainments. There has been a decided increase in the demand for the stories by teachers and educational institutions wishing to use them as reference material.

The following list shows the variety of topics to be found in Museum Stories for Children published in 1932:

Series XVIII—Indian Houses; Life in a Prairie-Dog Town; Chocolate or Cacao; Bustards and Vultures; Deerslayer, the Mountain Lion; Greenland; The Mayas; The Potawatomi Indians; The European Cuckoo; Desert Life.

Series XIX—The Land of the Rising Sun; Lodestone, the Compass Mineral; Childhood in China; Iron; Peanuts; From Plants to Coal; Story of Wheat; The Moon; The Whales; Winter Coats in Northern Lands.

A total of 33,750 copies of Museum Stories for Children was distributed during the year.

LECTURE TOURS FOR CHILDREN—RAYMOND FOUNDATION

In spite of a reduction in the number of guide-lecturers, the class work in the exhibition halls has been carried forward. A greater number of classes from the early elementary grades has been handled. The attendance from high schools has fallen short of the record established in 1931, but appreciation of the newly arranged exhibits which aid in geological and zoological work has been freely expressed. The following table shows how the groups were distributed:

	Number of groups	Attendance
Tours for children of Chicago schools		
Chicago public schools.....	172	6,815
Chicago parochial schools.....	34	1,582
Chicago private schools.....	13	222
Tours for children of suburban schools		
Suburban public schools.....	160	5,871
Suburban parochial schools.....	8	249
Suburban private schools.....	13	219
Tours for special groups		
Children's clubs.....	10	225
Other organizations.....	36	2,285

In all, 446 groups were given guide-lecture service and the attendance was 17,468.

EXTENSION LECTURES—RAYMOND FOUNDATION

Extension lectures were offered to the schools, as in previous years. For high school classes and assemblies the following subjects were offered:

Field Museum and Its Work; The Ancient Egyptians; The Romans: Their Arts and Customs; Prehistoric Life; Reptiles and Insects; Bird Life in the Chicago Area; Animal Life in the Chicago Area; Trees of the Chicago Area; Wild Flowers of the Chicago Area; Story of Iron and Steel.

For presentation in the elementary schools the following series was offered:

FOR GEOGRAPHY AND HISTORY GROUPS

South America; North American Indians; Glimpses of Chinese Life; Native Life in the Philippines; The Romans; The Egyptians; Migisi, the Indian Lad (for lower grades).

NEW YORK WEASEL

This is the common Wadell of the north-eastern United States, and is called New York Wadell because it was originally discovered in New York state. It is usually put out always in pairs, while in winter, and at that season it is often called grinnin'. It is in fact almost similar to the *fulviventris*, and nearly equal to that

Like all Wagsels, it feeds by darting death into the hollow structure, and in proportion to its size it is one of the most ferocious and self-sufficient of all animals. It attacks small birds, and eggs, and forms a large part of its food, but it does not hesitate to prey upon animals larger than itself, and especially on snakes. It kills many rabbits, and large birds like the Quail, partridge, are also among its victims, and at times it attacks the poultry, and often killing many more birds than it can eat.

The Wagon Pass is home to a hollow log or stump or perhaps in the hollow of some animal which a hawk killed or drank out.

No. 7-129



NEW YORK WEASEL

His is the cement in Aesculap of the north, the cement in United States and is called New York Aesculap because it was originally discovered in New York state. It usually, but not always, acts as a whole in water and at that season it is then called cement. It is in fact close's similar to the European cement and nearly equals that in its resistance to the action of the sea.

I saw all kinds of birds in the deadening death of the frozen *prateras*, and in proportion to the size of the birds, the more lifeless and belatedly they were. They were small birds, and eggs were a large part of the food. But it does not seem to have been so much larger than itself, and especially in winter, it follows many birds, and birds like the *huffed* for some time, and among the birds, and at times it looks like a great, and often a long, many, many birds, and it is a bird.

The Wessel has also been on a hydrographic voyage, or perhaps on the business of some national school of naval architecture.

No. 7.139

TYPE OF CASE LOANED TO THE SCHOOLS OF CHICAGO BY THE N. W. HARRIS PUBLIC SCHOOL
EXTENSION OF FIELD MUSEUM OF NATURAL HISTORY

One-sixth actual size

THE ADAMS

OF THE

OF ILLINOIS

FOR SCIENCE GROUPS

Field Museum and Its Work; Prehistoric Life (*for upper grades*); Insects and Reptiles (*for upper grades*); Coal and Iron; Coffee, Chocolate and Tea; A Trip to Banana Land; Food Fishes of the World; Birds of the Chicago Area; Animal Life of the Chicago Area; Trees of the Chicago Area; Wild Flowers of the Chicago Area; Animals at Home; Our Outdoor Friends (*for lower grades*).

The following table gives the classification, numbers, and attendance of the groups reached by the extension lecturers:

	Number of groups	Attendance
Chicago elementary schools.....	452	171,160
Chicago high schools.....	28	8,935
Chicago school clubs.....	4	127
Parent-teacher associations.....	2	550
Chicago colleges.....	2	900

The total number of extension lectures presented by the staff of the Raymond Foundation was 488, and the total attendance at these lectures was 181,672.

NATURE STUDY COURSE—RAYMOND FOUNDATION

At the request of the Chicago Council of Boy Scouts of America the fourth series of talks on natural history topics was arranged for scoutmasters. The series consisted of three meetings. At each, a member of the Raymond Foundation staff presented a subject which would be of value to leaders of Boy Scout groups, and also assisted in the conference which followed the lecture. The subjects offered were:

- March 19—Birds of the Chicago Area.
- April 2—Ecology of the Chicago Area.
- April 16—Insects, Reptiles and Mammals.

The total attendance at these lectures and conferences was 302.

RADIO BROADCASTING—RAYMOND FOUNDATION

Radio broadcasts by the Raymond Foundation staff were given in connection with the school radio programs sponsored by Station WMAQ. During the year twenty-six talks were presented to grades ranging from the first to the fourth. The talks given correlated with the course of nature study being given in the elementary schools.

During the summer course of children's entertainments, broadcasting material was prepared each week for the radio stations giving publicity to the programs.

ACCESSIONS—RAYMOND FOUNDATION

The Raymond Foundation acquired during the year fifty stereopticon slides for use in the Theatre and in the extension lectures,

and two negatives, all made by the Division of Photography. Two hundred colored slides were purchased from the Methodist Book Concern for use in the extension lectures.

The Raymond Foundation was also the beneficiary of the following gifts to the Museum: one motion picture reel, *The Beaver People*, was presented by the Department of the Interior, Canada; two reels, *The Beckoning Tropics*, were a gift from the United Fruit Company; one reel, *Sheet and Wire Steel*, was received from the United States Steel Corporation; and 199 colored slides on Chinese subjects were presented by the Chicago, Milwaukee, St. Paul and Pacific Railway Company.

LECTURE TOURS AND MEETINGS FOR ADULTS—RAYMOND FOUNDATION

As in past years, the services of Museum guide-lecturers were offered, without charge, to clubs, conventions, and other organizations, and to Museum visitors in general. For the public, seventy-seven general tours and 243 tours covering specific exhibits were arranged. Printed monthly tour schedules were placed at the main entrance for the use of visitors. Each month copies of these schedules were sent to libraries and to some of the railroads bringing suburban groups into the city. The lecture tours were well attended.

The adult groups which took advantage of the guide-lecture service during the year numbered 341, with a total attendance of 5,496 individuals.

The use of the small lecture hall was extended to eight adult educational and civic groups. These meetings were attended by 620 persons.

On June 2, the graduating exercises of the foreign adults who had been studying in the public schools of the city were held in the James Simpson Theatre. The attendance was 630.

SUMMARY OF ATTENDANCE AT LECTURES, ETC.—RAYMOND FOUNDATION

The total number of groups receiving instruction by means of lectures, entertainments and tours was 1,336 with an aggregate attendance of 279,516. This figure includes both adults and children participating in Museum educational activities. Of these totals, 1,309 groups with an aggregate attendance of 251,119 were reached through the activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

LECTURES FOR ADULTS

The Museum's fifty-seventh and fifty-eighth courses of free lectures for the public were given in the James Simpson Theatre on Saturday afternoons during the spring and autumn months. They were illustrated by motion pictures and stereopticon slides. Following are the programs of both courses:

FIFTY-SEVENTH FREE LECTURE COURSE

- March 5—Hawaii—the Creator's Workshop.
Mr. George Dewey Douglas, Los Angeles, California.
- March 12—Hitting the Trail in Masailand.
Colonel Charles Wellington Furlong, Boston, Massachusetts.
- March 19—Massa-Magaga (Head Takers of Formosa).
Captain Carl von Hoffman, New York.
- March 26—The Coronation of His Imperial Majesty, the King of Kings, Emperor of Abyssinia.
Mr. André La Varre, New York.
- April 2—The Human Side of the Byrd Expedition.
Chief Yeoman Charles E. Lofgren, United States Navy (retired),
Personnel Officer of the Byrd Expedition to the Antarctic.
- April 9—Jungle Life in Motion Pictures.
Commander George M. Dyott, New York.
- April 16—The World's Most Beautiful Flowers and Trees.
Mr. Fred Payne Clatworthy, Estes Park, Colorado.
- April 23—Caves and Canyons of the Carlsbad Country.
Mr. Carl B. Livingston, Carlsbad, New Mexico.
- April 30—Wild Life Adventures.
Mr. Howard H. Cleaves, Staten Island, New York.

FIFTY-EIGHTH FREE LECTURE COURSE

- October 1—Hunting Big Game with Bow and Arrow.
(Demonstrated with bow and arrow.)
Mr. Art Young, Detroit, Michigan.
- October 8—Jungle Experiences in British Guiana, South America.
Professor Harold D. Fish, Tropical Research Board, Washington,
D.C.
- October 15—Insects, Birds, and Movements of Plants.
Mr. Norman McClintock, Pittsburgh, Pennsylvania.
- October 22—The Kingdom of the Moors.
Captain Carl von Hoffman, New York.
- October 29—By Air to Inca Land.
Mr. Robert Shippee, Leader of the Shippee-Johnson Expedition
to the Peruvian Andes, Red Bank, New Jersey.
- November 5—Adventures in Alaska.
Mr. William M. Finley, Director of Wild Life Conservation,
State of Oregon, Jennings Lodge, Oregon.
- November 12—The Australian Aborigines.
Dr. A. R. Radcliffe-Brown, Department of Anthropology,
University of Chicago.
- November 19—The Dutch East—Wonderlands of the Golden East.
Mr. H. C. Ostrander, Yonkers, New York.
- November 26—The Voyage of a Submarine Columbus.
Mr. Brayton Eddy, Providence, Rhode Island.

The total attendance at these eighteen lectures was 27,147, of which 13,772 were at the nine spring lectures, and 13,375 at the nine autumn ones.

LIBRARY

Several new exchange arrangements have been effected during 1932, as a result of which the Museum's Library has received valuable material. Since the Library depends to a large extent on its exchanges for additions to its collections of books and pamphlets, it has been especially gratifying to form these new connections, and at the same time to be able to report large benefits from the continuance of relations with other institutions and individuals previously on the exchange list. Some institutions from which publications had not recently been received resumed the exchange of material.

Purchases have necessarily been limited to those books most needed for immediate use, and a small number was added to each department. Three previously incomplete sets were filled, adding much to their usefulness.

From various friends of the Museum desirable gifts have been received. The Fisheries Society of Japan, Tokyo, sent Volume II of their *Illustrations of Japanese Aquatic Plants and Animals*, Volume I of which was received last year. Dr. J. Christian Bay, of Chicago, gave a helpful *Index to Audubon's Birds of America, 1827-1838*. Mr. Maximo Martinez, of Mexico City, sent a typewritten copy of a manuscript of *El Judio*, by Osade Ricardo. Mr. Arthur M. Barnhart, of Chicago, presented the seven volumes of Stehlin's *Die Säugetiere des schweizerischen Eocäens*. Mrs. James Keogh, of Chicago, gave twenty-eight volumes on wild animal life. Dr. Earl E. Sherff, of Chicago, presented a collection of reprints and notes on *Xanthium*. Additional gifts have been received from members of the Museum staff.

The continued increase in the number of readers and students from outside has been a cause of gratification. Many of these stated that at Field Museum they have had the use of material which they have failed to find in any other library. Among the visitors are included some from distant localities as well as from the Chicago vicinity.

There have been more calls for interlibrary loans than before and these have been from widely separated places. The Museum desires to acknowledge its indebtedness to other libraries for courtesies received. Among those whose cooperation is especially notable are the Library of Congress, John Crerar Library, the library of the American Museum of Natural History, the library

of the University of Michigan, the library of the University of Illinois.

There have been accessioned 2,182 books and pamphlets, and 7,077 cards have been added to the catalogue. From the John Crerar Library 7,066 cards have been received and filed.

The Library's record books now occupy seventeen volumes, and contain 82,525 entries, of which 2,021 were made in 1932. The total number of catalogue cards written is 411,679, of which 7,077 were prepared during 1932.

Additional stack space for the accommodation of several thousand books, heretofore kept in the departmental libraries and elsewhere, was provided in the form of steel racks in a room near the general Library.

DIVISION OF PRINTING

The production of the Division of Printing was much reduced owing to a drastic reduction in the staff made necessary as a measure of economy. This resulted in the accumulation of a large number of manuscripts for publications, which will have to be held pending such time as conditions will permit additions to the staff.

The greater part of the time of the Division was devoted to printing exhibition labels for the various Departments, the total of these being 24,034. Toward the end of the year the output of labels was greatly increased by using the monotype machine for the first time on all small labels instead of hand-set composition. Miscellaneous work of the Division totaled 400,255 impressions.

Twelve additions to the regular series of Field Museum publications were issued, of which one was anthropological, two were botanical, two geological, six zoological, and one the Annual Report of the Director for 1931. Of the books in these series, 15,500 copies were produced, containing an aggregate of 1,166 pages of type composition. Besides these, one number was added to the geology leaflet series and another to the special guides. A second edition of an anthropology leaflet was also issued. Of these additional books, 5,126 copies were printed, the composition totaling 368 pages. A detailed list of these various publications follows:

PUBLICATION SERIES

Publication
number

305.—Geological Series, Vol. VI, No. 1. The Auditory Region of the Toxodontia. By Bryan Patterson. January 5, 1932. 28 pages, 5 zinc etchings. Edition 773.

306.—Report Series, Vol. IX, No. 1. Annual Report of the Director for the Year 1931. January, 1932. 287 pages, 22 photogravures. Edition 6,898.

- 307.—Geological Series, Vol. VI, No. 2. Upper Canadian (Beekmantown) Drift Fossils from Labrador. By Sharat Kumar Roy. April 8, 1932. 31 pages, 2 photogravures. Edition 796.
- 308.—Zoological Series, Vol. XIX. The Birds of Chile. By Charles E. Hellmayr. June 13, 1932. 472 pages. Edition 757.
- 309.—Zoological Series, Vol. XVIII, No. 7. Reptiles and Amphibians of the Mandel Venezuelan Expedition. By Karl P. Schmidt. June 16, 1932. 8 pages. Edition 775.
- 310.—Zoological Series, Vol. XVIII, No. 8. Notes on New Guinean Crocodiles. By Karl P. Schmidt. June 16, 1932. 8 pages, 2 photogravures, 1 zinc etching. Edition 772.
- 311.—Zoological Series, Vol. XVIII, No. 9. Reptiles and Amphibians from the Solomon Islands. By Karl P. Schmidt. July 8, 1932. 18 pages, 1 photogravure. Edition 773.
- 312.—Zoological Series, Vol. XVIII, No. 10. Mammals of the Kelley-Roosevelts and Delacour Asiatic Expeditions. By Wilfred H. Osgood. August 19, 1932. 149 pages, 2 photogravures, 2 zinc etchings, 1 map. Edition 769.
- 313.—Botanical Series, Vol. VIII, No. 6. Revision of the Genus *Cosmos*. By Earl Edward Sherff. September 2, 1932. 49 pages. Edition 826.
- 314.—Zoological Series, Vol. XVIII, No. 11. Birds of Western China Obtained by the Kelley-Roosevelts Expedition. By Outram Bangs. October 12, 1932. 40 pages. Edition 886.
- 315.—Anthropological Series, Vol. XVII, No. 4. The Solar Year of the Mayas at Quirigua, Guatemala. By J. Eric Thompson. November 1, 1932. 60 pages, 2 zinc etchings. Edition 638.
- 316.—Botanical Series, Vol. XI, No. 4. New Plants from British Honduras. By Paul C. Standley. December 15, 1932. 16 pages. Edition 837.

LEAFLET SERIES

- Geology, No. 13.—The Geological History and Evolution of the Horse. By Elmer S. Riggs. November 17, 1932. 54 pages, 19 photogravures, 4 zinc etchings, 1 cover illustration. Edition 3,134.
- Anthropology, No. 25 (second edition).—The Civilization of the Mayas. By J. Eric Thompson. December 12, 1932. 104 pages, 14 photogravures, 11 zinc etchings, 1 map, 1 cover design. Edition 1,224.

GUIDE SERIES

- Anthropology Guide, Part V. Ethnology of Melanesia. By Albert B. Lewis. February 1, 1932. 210 pages, 64 photogravures, 2 maps. Edition 768.

DIVISIONS OF PHOTOGRAPHY AND ILLUSTRATION

The total number of negatives, prints, enlargements of photographs, lantern slides, and transparent exhibition labels made by the Division of Photography during 1932 was 12,069. Of these, 345 photographic prints and thirty-four lantern slides were for sales on orders placed by outsiders; the balance were for various uses in Departments and Divisions of the Museum.

The Division of Photogravure produced a total of 521,350 photogravure impressions during the year. These were for the illustration of publications and leaflets, for headings of posters and membership certificates, and for picture post cards.

The Museum Illustrator completed 1,505 orders for the Museum's Departments and Divisions. These included 283 pen drawings, 27 maps, 39 charts, retouching of 162 photographs, blocking and hair-lining of 689 negatives, coloring of 169 lantern slides, and other miscellaneous jobs to the total indicated above.

DIVISION OF PUBLICATIONS

As in previous years, Field Museum distributed its publications to the libraries, museums, and other institutions with which it maintains exchange relations. To these and to individuals engaged in scientific work, the Museum during 1932 sent 10,961 copies of scientific publications and 703 copies of leaflets and miscellaneous pamphlets. It also sent 4,792 copies of the 1931 Annual Report of the Director and 368 copies of a geology leaflet to Members of Field Museum. Sales for the year totaled 625 scientific publications, 4,048 leaflets, and 5,708 miscellaneous publications and pamphlets.

Fifteen large boxes containing publications for foreign institutions were shipped to the Smithsonian Institution, at Washington, D.C., for distribution through its international exchange bureau, and grateful acknowledgment is tendered that institution for its excellent service and cordial cooperation. For future distribution and sales, 155 packages of 1932 publications were wrapped, labeled, and stored.

The Museum increased its exchange relations by the addition of twenty-six names to the domestic mailing list and thirty-five to the foreign.

Owing to the increasing demand for space in the publication stockroom to accommodate new publications, it was necessary to dispose of excess stocks of older publications by selling them as waste paper. This excess accumulation covered a long period of time and was the result of variation in the size of editions and in the number of requests for publications of the different series.

POST CARDS

The number of picture post cards sold during the year 1932 was 74,590. The decrease in the volume of sales of both individual cards and sets of cards undoubtedly may be attributed to the continued depressed financial conditions that existed throughout the year. Outstanding among new cards issued are one of the African water-hole group, and one of the giant sable antelope.

DIVISION OF PUBLIC RELATIONS

The Museum's publicity about activities of interest to the public has been maintained through its Division of Public Relations

on approximately the same scale as in the past several years. Newspapers, magazines, and other media of distribution have given cordial cooperation in publishing the news emanating from the Museum.

The news of most general interest and importance has appeared throughout the nation, and often in the press of many other countries as well, as a result of the interest manifested by national and international news agencies. Much of this news matter has been illustrated with photographs supplied by the Museum; in many other cases pictures have been taken by newspaper staff photographers especially assigned for the purpose by editors upon receiving the Museum's news releases. In addition, various newspapers and magazines have, on their own initiative, published special articles and series of pictures concerning the Museum, and the institution has extended its assistance to the writers, photographers, and artists assigned to prepare such material.

The Museum has continued publication of *Field Museum News*, the monthly bulletin for Members, preparation of which is another duty of the Division of Public Relations. This bulletin, containing advance notice of lectures for adults and children's entertainments, news of all important activities, pictures of new exhibits, and articles on a variety of subjects contributed by members of the scientific staff, has been distributed promptly to Members at the beginning of each month. It has also been sent to editors of newspapers and magazines, who frequently reprint or quote in part its articles, thus increasing the general publicity received by the Museum. The *News* is used also as an exchange medium in the relations maintained with many other scientific institutions.

Once again the Museum has enjoyed the courtesies of various organizations which have made the facilities of their advertising media available without charge, and opportunity is taken here to express appreciation of these favors. The Illinois Central and the Chicago and North Western Railways continued, as in past years, to display at their city and suburban stations posters announcing Field Museum lecture courses. Such posters also appeared in libraries, schools, department stores, hotels, clubs, and other places where they would attract public attention. Local and interurban transportation companies of the Chicago region distributed folders about the Museum to their patrons, and advertised it in other ways. This was done on an especially extensive scale by the Chicago

Motor Coach Company, which printed and distributed literature about the Museum at its own expense.

Other publicity resulted from the cooperation of various radio stations and the producers of motion picture newsreels.

DIVISION OF MEMBERSHIPS

There has been some decline in the number of persons on the Museum's membership lists, due to continuance of the general business depression. It is gratifying to note, however, that the great majority of Members have loyally continued their support of the institution. To those members the Trustees express their appreciation. Such resignations as have occurred have for the most part been received from those whose financial circumstances made the continuation of their memberships impossible. New Members have been enrolled in place of many of those who resigned.

The following tabulation shows the number of names on the rolls in each of the Museum's membership classifications at the end of 1932:

Benefactors.....	18
Honorary Members.....	18
Patrons.....	30
Corresponding Members.....	6
Contributors.....	102
Corporate Members.....	44
Life Members.....	328
Non-Resident Life Members.....	8
Associate Members.....	2,390
Non-Resident Associate Members.....	3
Sustaining Members.....	84
Annual Members.....	1,488
Total memberships.....	4,519

The names of all Members on the rolls as of December 31, 1932, will be found elsewhere in this Report.

CAFETERIA

The cafeteria served refreshments to 64,134 persons during 1932, a decrease of 30,322 compared with the number served during 1931. In the face of the tremendous increase in the general attendance of the Museum, this decrease seems attributable to the general business conditions.

In the pages which follow are submitted the Museum's financial statements, lists of accessions, names of Members, *et cetera*.

STEPHEN C. SIMMS, *Director*

COMPARATIVE ATTENDANCE STATISTICS AND DOOR RECEIPTS

FOR YEARS 1931 AND 1932

	1932	1931
Total attendance.....	1,824,202	1,515,540
Paid attendance.....	82,607	126,209
Free admissions on pay days:		
Students.....	18,548	15,960
School children.....	86,496	67,478
Teachers.....	2,121	1,868
Members.....	1,560	1,517
Admissions on free days:		
Thursdays..... (52)	325,164	(53) 293,654
Saturdays..... (53)	546,811	(52) 407,303
Sundays..... (52)	760,895	(52) 601,551
Highest attendance..... (Sept. 4)	36,629	(May 21) 51,917
Lowest attendance..... (Dec. 16)	101	(March 9) 130
Highest paid attendance..... (July 4)	3,179	(Sept. 7) 4,513
Average daily admissions..... (366 days)	4,984	(365 days) 4,152
Average paid admissions..... (209 days)	395	(208 days) 607
Number of guides sold.....	4,512	7,634
Number of articles checked.....	10,755	17,515
Number of picture post cards sold.....	74,590	138,514
Sales of publications, leaflets, handbooks, portfolios, and photographs.....	\$3,326.51	\$5,351.54

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1931 AND 1932

	1932	1931
Income from Endowment Fund	\$188,870.86	\$187,873.35 Net
Income from funds held under annuity agreements.....	40,242.55	42,044.16
Income from Life Membership Fund	13,616.33	14,824.77
Income from Associate Membership Fund	13,973.49	13,491.20
South Park Commissioners....	112,926.45	167,360.43
Annual and Sustaining Memberships.....	11,395.00	14,655.00
Admissions.....	20,651.75	31,552.25
Sundry receipts.....	15,933.63	11,715.67
Contributions, general purposes	114,000.00	200,000.00
Contributions, special purposes (expended <i>per contra</i>)	79,978.74	110,944.82
Special funds:		
Part expended this year for purposes created (included <i>per contra</i>)	31,526.21	40,067.81
	\$643,115.01	\$834,529.46
Less: Reserve for contractual liabilities created in former years.....	76,155.39
	\$566,959.62
Expenditures:		
Collections.....	\$127,385.69	\$179,603.62
Expeditions.....	10,181.43	34,868.69
Furniture, fixtures, etc....	4,655.42	24,461.58
Plant reproduction.....	5,096.46	16,362.54
Pensions, group insurance	16,479.04	17,918.03
Research fellowship.....	500.00	1,000.00
Departmental expenses....	54,898.96	110,475.70
General operating expenses.	302,080.25	407,431.95
Annuities on contingent gifts	38,822.26	40,176.23
Added to principal of annuity endowments.....	1,420.29	1,867.93
Interest on loans.....	7,465.38	7,574.58
	\$568,985.18	\$841,740.85
Remaining excess of expenditures over income and receipts.....	\$ 2,025.56	\$ 7,211.39
Contribution.....	2,025.56
Notes payable January 1.....	\$184,800.00	\$187,000.00
Additional loans.....		82,000.00
Paid on account.....	28,700.00	84,200.00
Balance payable December 31.....	\$156,100.00	\$184,800.00

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

COMPARATIVE STATEMENTS OF INCOME AND EXPENSES

FOR YEARS 1931 AND 1932

	1932	1931
Income from Endowment.....	\$20,439.36	\$21,008.36
Operating expenses.....	17,401.68	19,028.69
Balance, December 31.....	\$ 3,037.68	\$ 1,979.67

LIST OF ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY

ABSOLON, PROFESSOR KAREL, Brunn, Czechoslovakia: 4 casts of paleolithic engraved bone objects—Czechoslovakia (gift).

ALLISON, MRS. NATHANIEL, Chicago: 1 wooden pounder—New Zealand (gift).

AMERICAN FRIENDS OF CHINA, Chicago: 1 archaic jade scraper, 1 figure of Goddess of Mercy, Kwan Yin, made of water-buffalo horn, 1 celadon figure and 1 cover of cut velvet—China (gift).

BARRETT, EDWARD, New York: 1 examination "crib" of silk inscribed with one of the classical books—China (gift).

BISBEE, J. B., Michigan City, Indiana: 1 old piece of tapa cloth—Hawaii (gift).

BREUIL, ABBÉ HENRI, Paris, France: 1 quartzite, 1 burnt bone—Chou-koutien, China; 3 samples from geological deposits, 31 Aurignacian flints from Laussel, 9 paleolithic flints—northern France (gift).

CERMAK, MAYOR ANTON J., Chicago: 1 stone celt, 1 stone ax, 8 projectile points—Silver City, New Mexico (gift).

CORBIN, AUSTIN, New York: 4 boar skins for a group in Hall C (gift).

DEBURGENIE, MR. and MRS. EDWARD, Chicago: 1 ax of Chellean type—Areosa, Portugal (gift).

FABER, A. DILWORTH, Chicago: 1 silver tongue-cleaner—China (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Field Museum—Oxford University Joint Expedition to Mesopotamia (Marshall Field Fund): stuccos, chiefly fragmentary, and 18 pieces of pottery from Sassanian palaces, 60 pottery jars, 40 clay figures and sherds, beads, glass, bronze implements, and 40 skulls of the Sumerian period—Kish, Mesopotamia.

Collected by Vernay—Lang Kalahari Expedition of Field Museum: 6 ostrich eggs used as water vessels—Bushmen, South Africa.

Purchases: 2 casts of fighting ibex and bison from cave of Solutrean period—Le Roc, France.

HARRIS, GEORGE, Waco, Texas: 2 prehistoric flint scrapers and 4 flint knives—Gatesville and Waco, Texas (gift).

HINCKLEY, MRS. FREEMAN S., Chicago: 15 ethnographical objects—Fiji, Hawaiian, and Society Islands (gift).

KELLEY, HARPER, Paris, France: 2 prehistoric flint hand-axes—Saintes, Charente Inférieure, France; 5 notched Solutrean flints—Le Placard, France (gift).

KNOBLOCK, BYRON, La Grange, Illinois: 15 Indian skulls and 6 fragmentary skulls—Illinois; 1 Indian skull—Catalina Island; 1 flint projectile point of Folsom type—near Harrisburg, Illinois; 1 flint projectile point of Folsom type—Godfrey, Illinois; 1 prehistoric stone celt—Denmark; 1 Indian skull—St. Clair County, Illinois; 3 projectile points of Folsom type (exchange); 6 large and 18 small stalactites—Kentucky (gift).

KROHN, MRS. JOSEPHINE, Chicago: 1 large chert scraper—Union County, Illinois (gift).

LOOMIS, MRS. EDWIN C., Chicago: 7 beaded objects—Sioux Indians, North Dakota (gift).

MCCORMICK, MRS. ALEXANDER A., Chicago: 2 ancient scarabs—Egypt (gift).

MOORE, H. G., Peoria, Illinois: 1 rain coat—China (gift).

NEFF, MISS BARBARA, Chicago: 28 pieces of beadwork—Plains Indians, Montana; 38 pieces of jewelry—Algeria; 1 piece of Zulu beadwork—southeast Africa (gift).

OPPENHEIM, BARON MAX VON, Berlin: 34 fragments of painted pottery, 9 obsidian implements, 5 flint implements—Tell Halaf, upper Mesopotamia (exchange).

PEABODY MUSEUM OF HARVARD UNIVERSITY, Cambridge, Massachusetts: 290 archaeological objects and 1 chart—Maine, Massachusetts, and Georgia; Honduras, Yucatan, and Marshall Islands (exchange).

POPE, ARTHUR U., New York: 6 prehistoric bronze implements: 1 rein ring, 1 mace head, 3 battle-axes, 1 spearhead—Luristan, Persia (gift).

PRASUHN, JOHN G., Chicago: 1 rattan shield—Wambuti tribe, north-east Congo, central Africa (exchange).

PRICE, MRS. IRA M., Chicago: 6 old baskets, 2 basket plaques, 14 ivory tools—Eskimo, Aleutian Islands and Point Barrow, Alaska (gift).

SHELLSHEAR, PROFESSOR J. L., Hong Kong, China: 34 fragments of prehistoric pottery and 16 flint implements—Hong Kong, China (gift).

WATROUS, P. B., Chicago: 1 slate bannerstone—Iowa (gift).

WILLIAMS, DR. C. B., Edinburgh, Scotland: 42 flint implements—El-Maadi near Cairo, Egypt; 16 obsidian implements—Naivasha, Kenya Colony (gift).

WRETSLIND, E. W., Kokomo, Indiana: 1 prehistoric flint spearhead and 1 prehistoric perforated stone ax—Sweden (gift).

DEPARTMENT OF BOTANY—ACCESSIONS

AELLEN, DR. PAUL, Basel, Switzerland: 52 specimens of European plants (exchange).

AMERICAN BEMBERG CORPORATION, New York: 12 samples of rayon and raw materials (gift).

AMERICAN DYEWOOD COMPANY, Chester, Pennsylvania: 1 log of fustic, 1 log of logwood (gift).

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts: 1,081 plant specimens (exchange).

ARSÈNE, REV. BRO. G., Las Vegas, New Mexico: 2 plant specimens from New Mexico (gift).

BARNABY, CHARLES H., Greencastle, Indiana: 1 trunk, 4 slabs of dogwood (gift).

BENKE, HERMANN C., Chicago: 988 plant specimens (gift).

BISHOP MUSEUM, BERNICE PAUAI, Honolulu, Hawaii: 34 plant specimens from Hawaii (exchange).

BLETSCH, W. E., Highland Park, Illinois: 29 wood samples (gift).

BLOM, FRANZ, New Orleans, Louisiana: 1 bundle of tobacco from Mexico (gift).

BOARD OF AGRICULTURE AND FORESTRY, Honolulu, Hawaii: 58 hand specimens of Hawaiian woods (gift).

BOOTH, LAWRENCE M., Berkeley, California: 5 plant specimens (gift).

BORIS FRÈRES E COMPANHIA LTDA., Ceará, Brazil: 3 specimens maniçoba rubber, 6 specimens carnauba wax (gift).

BOTANICAL GARDEN AND MUSEUM, Berlin-Dahlem, Germany: 67 drawings of plants, 4 herbarium specimens (exchange); 9 wood panels (gift).

BOTANISKA MUSEET, Lund, Sweden: 675 plant specimens (exchange).

BRADÉ, A. C., Rio de Janeiro, Brazil: 29 plant specimens from Brazil (gift).

BRAVO H., MISS HELIA, Chapultepec, Mexico: 1 plant specimen (gift).

BREMER, MISS MARY, Crown Point, Indiana: 1 plant specimen from Indiana (gift).

BROADWAY, W. E., Port-of-Spain, Trinidad: 4 plant specimens (gift).

BROOKLYN BOTANIC GARDEN, Brooklyn, New York: 172 plant specimens from the Galapagos Islands (exchange).

BUCHTIEN, DR. OTTO, La Paz, Bolivia: 34 plant specimens.

BURKART, ARTURO, Buenos Aires, Argentina: 13 plant specimens from Argentina (gift).

CABALLERO, J. M., San Luis Potosí, Mexico: 6 boards of Mexican woods (gift).

CABRERA, DR. ANGEL L., La Plata, Argentina: 167 plant specimens from Argentina (exchange).

CADWALLADER GIBSON CO., INC., Los Angeles, California: 14 specimens of Philippine woods (gift).

CALDERON, DR. SALVADOR, San Salvador, Salvador: 18 plant specimens, 2 vials of Cymbopogon essence (gift).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco: 205 plant specimens (exchange).

CARPENTER, DR. RAY, New Haven, Connecticut: 64 plant specimens from Barro Colorado Island (gift).

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.: 110 plant specimens (exchange).

CHANEY, PROFESSOR RALPH W., Berkeley, California: 1 plant specimen (gift).

CHARDON, DR. CARLOS E., Río Piedras, Puerto Rico: 1 photograph of a Venezuelan plant (gift).

CHATEAU, REV. I., Mission, Texas: 1 plant specimen from Texas (gift).

CLARK, MISS EMILY A., Wushishi, Nigeria: 1 fungus specimen from Africa (gift).

CLARKSON, MRS. RALPH, Chicago: 1 photograph of plant (gift).

COLBY, EARL H., Crystal Lake, Illinois: 2 plant specimens (gift).

COLGATE-PALMOLIVE-PEET COMPANY, Kansas City, Kansas: 3 oil samples (gift).

COMPANHIA FORD INDUSTRIAL DO BRASIL, Pará, Brazil: 469 plant specimens, 3 resin specimens, and 159 wood specimens (gift).

COSTA LIMA E MYRTIL, Ceará, Brazil: 7 specimens carnauba wax (gift).

CRAFTSMAN WOOD SERVICE COMPANY, INC., Chicago: 7 boards of tropical woods (gift).

CURTIN, MRS. T. E., Pasadena, California: 41 plant specimens (gift).

CUTTING, C. SUYDAM, New York: 638 plant specimens from the Burma-Tibet frontier, collected by F. Kingdon Ward (gift).

DAHLGREN, DR. B. E., Chicago: 8 plant specimens, 1 mate strainer, 9 specimens of palm products (gift).

DAMPF, DR. ALFONS, Mexico City, Mexico: 59 plant specimens from Yucatan (gift).

DEAM, C. C., Bluffton, Indiana: 37 plant specimens (gift).

DESERT LABORATORY, Tucson, Arizona: 47 plant specimens (gift).

DIRECCION GENERAL DE AGRICULTURA, Guatemala City, Guatemala: 63 plant specimens, 5 wood samples, 1 photograph (gift).

DODSON, JOSEPH H., Kankakee, Illinois: 1 plant specimen (gift).

DOOLITTLE, MRS. H. M., Dallas, Texas: 1 plant specimen (gift).

DUGAND G., ARMAND, Barranquilla, Colombia: 2 plant specimens (gift).

DUPONT DE NEMOURS, E. I., AND COMPANY, Parlin, New Jersey: 18 samples of materials for making Duco, 5 samples of materials for making Fabricoid (gift).

DURKIN, MISS MARY, Chicago: 1 plant specimen from Michigan (gift).

EDDY, M. E., Rockton, Illinois: 3 plant specimens (gift).

EIFRIG, G., River Forest, Illinois: 3 plant specimens (gift).

ELIAS, REV. BRO., Barranquilla, Colombia: 62 plant specimens from Colombia (gift).

FARLOW HERBARIUM, Cambridge, Massachusetts: 13 specimens of lichens from Costa Rica (exchange).

FEDERACION DE CAFETEROS, Colombia: 20 photographs of the coffee industry (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by W. R. Maxon and E. P. Killip (delayed shipment from Field Museum Expedition to Jamaica, 1920): 180 plant specimens from Jamaica.

Collected by Floyd T. Smith (Marshall Field Zoological Expedition to China): 2 Chinese tea bushes.

Collected by the Vernay-Lang Kalahari Expedition: 884 plant specimens, 4 negatives of plant types, 1 trunk section and 1 bark sample of *Combretum*.

Field, Stanley, Plant Reproduction Laboratories: 14 models of plants.

Rockefeller Foundation Fund for Photographing Type Specimens: 3,997 negatives of type specimens of European herbaria; 4,230 photographic prints of type specimens.

Transferred from the Division of Photography: 1,606 photographic prints.

Purchases: 100 plant specimens from Argentina, collected by Dr. Arturo Donat; 146 plant specimens from Paraguay, collected by P. Jörgensen; 816 plant specimens from Campeche, collected by C. H. Lundell; 150 specimens of cryptogams from Germany and Switzerland, from Walter Migula; 152 plant specimens from Dominican Republic, collected by E. J. Valeur.

FISHER, GEORGE L., Houston, Texas: 141 plant specimens (gift).

FLEXO PRODUCTS COMPANY, Chicago: 4 samples of vegetable waxes (gift).

FLORES, DR. ROMÁN S., Progreso, Yucatan: 7 photographic prints, 2 wood samples, 33 plant specimens (gift).

FROEBEL HIGH SCHOOL, PUPILS OF, Gary, Indiana: 1 specimen of giant puffball (gift).

GARFIELD PARK CONSERVATORY, Chicago: 15 specimens of cultivated plants (gift).

GARRETT, PROFESSOR A. O., Salt Lake City, Utah: 84 plant specimens (gift).

GILLETT SAFFRON COMPANY, Chicago: 1 sample of saffron (gift).

GRAY HERBARIUM OF HARVARD UNIVERSITY, Cambridge, Massachusetts: 173 plant specimens (exchange).

HAMMERMILL PAPER COMPANY, Erie, Pennsylvania: 12 specimens of spruce wood for paper making (gift).

HANSBROUGH, J. R., New Haven, Connecticut: 2 plant specimens (gift).

HANSON, PROFESSOR HERBERT C., Fargo, North Dakota: 8 plant specimens (gift).

HAPEMAN, DR. H., Minden, Nebraska: 1 plant specimen (gift).

HATCH, MRS. BLANCHE C., Oswego, Illinois: 2 plant specimens from Mississippi (gift).

HAYDEN, MISS ADA, Ames, Iowa: 5 plant specimens (gift).

HAYNES, MISS CAROLINE C., Highlands, New Jersey: 26 specimens of hepatics (gift).

HAYNIE, MISS NELLIE V., Oak Park, Illinois: 8 plant specimens (gift).

HEIMERL, DR. ANTON, Vienna, Austria: 100 plant specimens (gift).

HERRERA, DR. FORTUNATO L., Cuzco, Peru: 601 plant specimens from Peru (gift).

HIGGINS, J. E., Summit, Canal Zone: 1 plant specimen (gift).

HINES, EDWARD, LUMBER COMPANY, Chicago: 8 pine boards (gift).

HOFFMANN, RALPH, Santa Barbara, California: 5 plant specimens (gift).

IMPERIAL FORESTRY INSTITUTE, Oxford, England: 4 plant specimens (gift).

INSTITUTO BIOLOGICO DE DEFESA AGRICOLA E ANIMAL, São Paulo, Brazil: 922 plant specimens from Brazil (exchange).

INSTITUTO DE BOTÁNICA Y FARMACOLOGÍA, Buenos Aires, Argentina: 35 plant specimens from Argentina (gift).

IOWA STATE COLLEGE, Ames, Iowa: 189 plant specimens (exchange).

IRWIN, MRS. WATSON, Chicago: 1 plant specimen (gift).

ITALIAN CHAMBER OF COMMERCE, Chicago: 8 straw hats from Italy (gift).

KANEKICHI ENDO, Tokyo, Japan: 1 board of kiri wood (gift).

KRUKOFF, B., Pará, Brazil: 1 plant specimen (gift).

KUTTNAUER AND FRANKE, Chicago: 9 samples of tobacco (gift).

LABORATORIO DE BOTÁNICA, MINISTERIO DE AGRICULTURA, Buenos Aires, Argentina: 164 plant specimens from Argentina (gift).

LIMA, ELPIDIO, Barroso, Ceará, Brazil: carnauba wax powder (gift).

LINDSAY LIGHT COMPANY, Chicago: 1 rayon mantle, 3 ramie mantles (gift).

LUNDELL, C. L., Dallas, Texas: 60 plant specimens from Campeche (gift).

MCCLOUD RIVER LUMBER COMPANY, McCloud, California: 4 trunk slabs, 1 wheel section of ponderosa pine (gift).

MADERA SUGAR PINE COMPANY, Madera, California: 1 branch of sugar pine (gift).

MARTIN, G. E., Davenport, Iowa: 2 photographs of ginkgo tree (gift).

MARTÍNEZ, PROFESSOR MAXIMINO, Mexico City, Mexico: 34 plant specimens from Mexico (gift).

MAYER, S. G., Georgetown, Ohio: 1 log section of dogwood (gift).

MENGEL COMPANY, Louisville, Kentucky: 1 board of Honduras mahogany, 1 board of Nicaraguan mahogany, 1 board of Brazilian satinwood (gift).

METROPOLITAN MUSEUM OF NATURAL HISTORY, Nanking, China: 1 alcoholic specimen of tea plant (gift).

MEXIA, MRS. YNES, Berkeley, California: 183 plant specimens (gift).

MEYER, WILLIAM C., New York: 81 plant specimens from British Honduras (gift).

MICHIGAN STATE COLLEGE, DEPARTMENT OF FORESTRY, East Lansing, Michigan: 23 wood samples (gift).

MOLDENKE, HAROLD M., Bronx Park, New York: 1 plant specimen from Arizona (gift).

MORTON, DR. FRIEDRICH, Hallstatt, Austria: 57 plant specimens, 9 seed samples (exchange).

MURRAY, LEO T., Ithaca, New York: 50 plant specimens from Texas (gift).

MUSEO DE HISTORIA NATURAL, Tucumán, Argentina: 95 plant specimens from Argentina (gift).

MUSEO DE LA PLATA, La Plata, Argentina: 100 plant specimens from Argentina (exchange).

MUSEO NACIONAL, San José, Costa Rica: 310 plant specimens from Costa Rica (gift).

MUSEO NACIONAL DE HISTORIA NATURAL, Buenos Aires, Argentina: 211 plant specimens from Argentina (exchange).

MUSEU NACIONAL, Rio de Janeiro, Brazil: 552 plant specimens from Brazil (exchange).

MUSEUM D'HISTOIRE NATURELLE, Paris, France: 55 plant specimens (exchange).

NATIONAL HERBARIUM OF VICTORIA, South Yarra, Australia: 203 plant specimens from Australia (exchange).

NATURHISTORISCHES MUSEUM, Vienna, Austria: 61 plant specimens from Costa Rica (exchange).

NEVERMANN, FERDINAND, San José, Costa Rica: 4 plant specimens, 1 wood specimen (gift).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York: 83 photographic prints of type specimens, 27 plant specimens (exchange).

NORTH DAKOTA STATE COLLEGE, Fargo, North Dakota: 687 plant specimens (exchange).

OSTEN, CORNELIUS, Montevideo, Uruguay: 141 plant specimens, 1 photographic print (gift).

PAUL, REV. BRO., Panama City, Panama: 183 plant specimens from Colombia (gift).

PEARSON, C. H., AND SON, HARDWOOD COMPANY, INC., New York: 4 planks of Central American woods (gift).

PEARSON, E. C., Las Cruces, New Mexico: 1 plant specimen (gift).

PENROD, JURDEN AND CLARK COMPANY, Cincinnati, Ohio: 8 specimens of Sapeli veneer (gift).

PINKLEY, MRS. A. E., Oak Lawn, Illinois: 1 fungus specimen (gift).

POPENOE, DR. WILSON, Guatemala City, Guatemala: 2 plant specimens (gift).

PRAIRIE FARMER PUBLISHING COMPANY, Chicago: 1 sample of cornstalk paper (gift).

PURPUS, DR. C. A., Zacuapam, Mexico: 333 plant specimens (gift).

RED RIVER LUMBER COMPANY, Westwood, California: 4 trunk slabs, 1 wheel section, 4 boards of incense cedar (gift).

REIMANN, CARMEN C. DE, Chicago: 1 plant specimen from Costa Rica (gift).

RHODES, WILLIAM, Indianapolis, Indiana: 27 plant specimens (gift).

ROYAL BOTANIC GARDENS, Kew, Surrey, England: 302 plant specimens from South America (exchange).

ROZYSKI, H. W. VON, Jaumave, Mexico: 623 plant specimens from Mexico, 2 packets of seeds (gift).

RUSSELL FORTUNE, INC., Indianapolis, Indiana: 5 panels of Oriental wood, 4 panels of koa, 1 panel of silky oak, 1 panel of amboyna (gift).

SANDBURG MANUFACTURING COMPANY, Chicago: 1 log section, 1 cross section, 2 engravers' blocks of Turkish boxwood (gift).

SCHANTZ, ORPHEUS M., Berwyn, Illinois: 4 plant specimens (gift).

SCHERER, WILLIAM G., Iquitos, Peru: 1 plant specimen (gift).

SCHIPP, WILLIAM A., Stann Creek, British Honduras: 359 plant specimens, 1 alcoholic specimen, 1 wood specimen (gift).

SCHMIEG, HUNGATE AND KOTZIAN, New York: 1 sample of camino wood (gift).

SCIENTIFIC OIL COMPOUNDING COMPANY, Chicago: 42 samples of vegetable oils, 1 sample of crude linseed oil (gift).

SHERFF, DR. EARL E., Chicago: 135 plant specimens, 2,234 negatives of type specimens (gift).

SHREVE, DR. FORREST, Tucson, Arizona: 38 plant specimens, 1 ephedra bush (gift).

SKWARRA, DR. ELISABETH, Königsberg, Germany: 2 plant specimens from Mexico (gift).

SLATER, GEORGE M., Ancon, Canal Zone: 1 plant specimen (gift).

SMITH, F. W., Guasave, Mexico: 4 plant specimens from Mexico (gift).

SMITH, J. H., VENEERS, INC., Chicago: 12 wood panels (gift).

SMITH, JESSE L., Highland Park, Illinois: 1 plant specimen from Indiana (gift).

STANDLEY, PAUL C., Chicago: 5 plant specimens from Indiana, 1 sapucaia fruit (gift).

STANFORD UNIVERSITY, DUDLEY HERBARIUM, California: 1,026 plant specimens (exchange).

STORK, PROFESSOR H. E., Northfield, Minnesota: 6 plant specimens from Costa Rica (gift).

SUGAR PINE LUMBER COMPANY, LTD., Pinedale, California: 4 trunk slabs, 1 wheel section of sugar pine (gift).

THOMPSON, STUART L., Toronto, Canada: 49 plant specimens (gift).

TORRES R., PROFESSOR RUBÉN, Cartago, Costa Rica: 371 plant specimens from Costa Rica (gift).

TRAIN, PERCY, Helena, Montana: 1 plant specimen from Nevada (gift).

TURNER, H. W., Punta Gorda, British Honduras: 1 specimen of cohune palm flowers (gift).

UNITED FRUIT COMPANY, Boston, Massachusetts: 7 boards of Honduran woods (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 317 photographic prints of type specimens, 2,270 plant specimens (exchange).

UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark: 560 plant specimens (exchange).

UNIVERSITY OF CALIFORNIA, DEPARTMENT OF BOTANY, Berkeley, California: 650 plant specimens (exchange).

UNIVERSITY OF CHICAGO, DEPARTMENT OF BOTANY, Chicago: 51,604 plant specimens (gift).

UNIVERSITY OF MICHIGAN, DEPARTMENT OF BOTANY, Ann Arbor, Michigan: 982 plant specimens from British Honduras and Guatemala (exchange).

UNIVERSITY OF MINNESOTA, DEPARTMENT OF BOTANY, Minneapolis, Minnesota: 370 plant specimens from Minnesota (exchange).

UNIVERSITY OF MONTANA, DEPARTMENT OF BOTANY, Bozeman, Montana: 215 plant specimens (exchange).

UNIVERSITY OF TEXAS, DEPARTMENT OF BOTANY, Austin, Texas: 661 plant specimens (gift).

VERDOORN, FR., Utrecht, Netherlands: 59 specimens of hepatics (exchange).

VISCOSE COMPANY, New York: 9 samples of materials for manufacture of rayon, 2 diagrams (gift).

WALPOLE, S. J., Chicago: 1 plant specimen from Yucatan (gift).

WEBERBAUER, DR. AUGUST, Lima, Peru: 1 plant specimen from Peru (gift).

WEED, ALFRED C., Chicago: 1 plant specimen (gift).

WELLS, JAMES H., Baldwin, Florida: 1 branch of pecan (gift).

WEST, ERDMAN, Gainesville, Florida: 1 plant specimen from Cuba (gift).

WETMORE, DR. R. H., Cambridge, Massachusetts: 229 plant specimens from Barro Colorado Island, 5 photographic prints (gift).

WHITE BROTHERS, San Francisco, California: 1 board of teak, 1 board of Jenisero (gift).

WILLIAMS, ICHABOD T., AND SONS, New York: 29 specimens of foreign woods (gift).

WITTE MEMORIAL MUSEUM, San Antonio, Texas: 1 plant specimen from Texas (gift).

WOODWORTH, DR. R. H., Cambridge, Massachusetts: 449 plant specimens from Barro Colorado Island (gift).

WORTHINGTON, DR. H. C., Oak Forest, Illinois: 1 plant specimen (gift).

YALE UNIVERSITY, SCHOOL OF FORESTRY, New Haven, Connecticut: 814 plant specimens (gift); 11 wood samples (exchange).

ZETEK, JAMES, Balboa, Canal Zone: 609 plant specimens from Barro Colorado Island, 6 photographic prints (gift).

DEPARTMENT OF GEOLOGY—ACCESSIONS

ALEXANDER, C. I., Fort Worth, Texas: 2 micro-fossils—Corsicana, Texas (gift).

BELOW, MR. and MRS. J. R.; MASON, MISS NAN; and PATTERSON, BRYAN, Chicago: 91 specimens of fossil plants—Galesburg, Illinois; 49 specimens of invertebrate fossils—Sag Canal, Illinois (gift).

BELOW, J. R., and PATTERSON, BRYAN, Chicago: 5 specimens of shark spines—Galesburg, Illinois (gift).

BOOMER, P. C., Chicago: 1 specimen of azurite—Phoenix, Arizona (gift).

BRESKY, ROBERT, Chicago: 1 specimen of rhyolite showing flow structure—from drift between Lyons and Summit, Illinois (gift).

CAWTHRON INSTITUTE, Nelson, New Zealand: 1 photograph of dragon fly; 1 photograph of *Aeschnidium* (exchange).

CENTRAL COMMERCIAL COMPANY, Chicago: 42 specimens of gilsonite—Cuba (gift).

CHALMERS, WILLIAM J., Chicago: 2 specimens of petrified wood—Petrified Forest, Arizona; 1 specimen of mimetite—Tsumeb, Southwest Africa; 1 specimen of sphalerite—Boulder, Colorado; 1 large quartz geode—Hamilton, Illinois (gift).

CHILE COPPER COMPANY, Chuquicamata, Chile: 2 specimens of large cephalopods—Chuquicamata, Chile (gift).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colorado: polished section of stone meteorite—Cotesfield, Nebraska; cast of stone meteorite (exchange).

DAHLGREN, DR. B. E., Chicago: 7 specimens of diamonds in matrix, 3 specimens of diamond matrix, 1 specimen of beryllium carbonate, 15 specimens of euxenite—Minas Geraes, Brazil; 1 specimen of oil shale—Espirito Santo, Brazil (gift).

DRASEK, FRANK VON, Cicero, Illinois: 22 pearls—Little Missouri River, Arkansas; 3 specimens of birds carved in

turquoise, 1 specimen of animal head carved in turquoise, 2 specimens of turquoise, 2 figures of alabaster and turquoise—Zuñi, New Mexico; 69 specimens of minerals, ores and fossils—New Mexico; 5 quartz crystals—Silver, Arkansas; 1 lot of crystal chips, Murfreesboro, Arkansas; 1 cabochon cut chalcedony—Arkansas (gift).

EDWARDS, STAFFORD C., Colton, California: 4 specimens of sand concretions—Colton, California (gift).

ELVEY, DR. C. T., Williams Bay, Wisconsin: 2 specimens of Odessa meteorite—Odessa, Texas (gift).

FEASEL, DARRELL, Amsden, Ohio: 1 specimen of *Spirifer mucronatus*—Amsden, Ohio (gift).

FIELD, HENRY, Chicago: photograph of fossil skeleton of *Archaeornis siemensii* (gift).

FIELD, HENRY, and PATTERSON, BRYAN, Chicago: 9 specimens of invertebrate fossils—stone quarry near Racine, Wisconsin (gift).

FIELD, HENRY; PATTERSON, BRYAN; and ROY, SHARAT K., Chicago: 349 specimens of invertebrate fossils—Blue Island, Illinois (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Bryan Patterson and Thomas J. Newbill, Jr. (Expedition to Colorado): 9 specimens of vertebrate fossils, 3 specimens of invertebrate fossils—Plateau Creek, Colorado.

Purchase: Section of agate—Uruguay.

GLOCKE, HENRY, Hebron, Indiana: 1 pyrite concretion—Hebron, Indiana (gift).

GUION, LE ROY P., Newton, Massachusetts: etched section of iron meteorite—Seneca Falls, New York (gift).

GUNNELL, E. M., Galesburg, Illinois: 1 specimen of millerite on calcite—St. Louis, Missouri (exchange).

HINE, ASHLEY, Chicago: 1 specimen of white serpentine for talcum powder—Alberta, Canada (gift).

KEESTER, LIEUTENANT-COMMANDER J. H., Cicero, Illinois: 3 specimens of lava and ash—volcano of Katmai, Alaska (gift).

KING, DR. MABEL, and GORDON, MISS BERTHA F., Chicago: 11 specimens of fossil leaves—Braidwood, Illinois (gift).

LEES, ARTHUR, and MANN, JOHN, Oak Lawn, Illinois: 1 specimen of enlarged crinoid—Brown County, near Morgantown, Indiana (gift).

MERCIL, A. A., Chicago: 1 specimen of electrolytic nickel (gift).

MIELKE, FRED, JR., Chicago: 1 specimen of fossil plant—Braidwood, Illinois (gift).

NEVEL, W. D., Andover, Maine: 1 specimen of pyrite—Boulder, Colorado (gift).

NEWMAN, A. T., Bloomer, Wisconsin: 30 limonite concretions—Bloomer, Wisconsin; 4 sand-calcite concretions—Devil's Hill, South Dakota (gift).

NININGER, PROFESSOR H. H., Denver, Colorado: polished and etched slab of iron meteorite—Tlacotepec, Mexico (exchange).

ORBACH, MR. and MRS. LEO, Chicago: skull of modern horse, *Equus caballus* (gift).

OTTAWA SILICA COMPANY, Ottawa, Illinois: 1 specimen of glass sand, 1 specimen of standard testing sand—Ottawa, Illinois (gift).

PATTERSON, BRYAN; LETTL, FRANK; and NEWBILL, THOMAS J., JR., Chicago: 48 specimens of invertebrate fossils—Danville, Illinois (gift).

PERRY, A. E., Winett, Montana: 3 photographs of fossil tracks (gift).

PICKHARDT, CARL, Chicago: glaciated copper boulder—Columbus, Wisconsin (gift).

PLAGAMANN, OTTO, Pacific, Missouri: 3 specimens eroded limestone—Pacific, Missouri (gift).

PRYDE, LEONARD, Oglesby, Illinois: glaciated copper boulder—Oglesby, Illinois (gift).

ROAT, ARTHUR, Red Lodge, Montana: 14 specimens of mesolite—Red Lodge, Montana (gift).

ROPER, MRS. A. H., Oak Park, Illinois: group of staurolite crystals in mica schist—Rausin Lake, Wisconsin (gift).

ROY, SHARAT K., and PATTERSON, BRYAN, Chicago: 23 specimens of invertebrate fossils—Milwaukee, Wisconsin (gift).

SAMPSON, W. H., San Fernando, California: 2 photographs of finding of the "Welcome Stranger" gold nugget in 1869 (gift).

SEWARD, N. H., Melbourne, Australia: 1½ fire opal in matrix, 2 iron meteorites—Australia (gift).

SPAACK, FRANK, Chicago: 20 specimens of mica, 7 specimens of miscellaneous minerals—Province of Quebec, Canada (gift).

STEWART, BLAIR W., South Bend, Indiana: 1 specimen of tennantite replacing pyrite, 4 specimens of colusite, 1 specimen of enargite crystals coated with tennantite—near Butte, Montana (gift).

STEWART, MRS. J. T., Chicago: 11 clay concretions—Grand Junction, Colorado (gift).

STOUT, THOMPSON, and HARTMAN, Ed., Lewellen, Nebraska: 1 bone of

Teleoceras fossiger, 3 teeth of *Pliohippus* cf. *leidyanus*, skull and jaws of *Ceratogaulus*—Lewellen, Nebraska (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: skull of fossil peccary, *Platygonus cumberlandensis*—Cumberland, Maryland (exchange); cast of the Santa Fe meteorite (gift).

WALLIFER, C. P., Chicago: 1 mass of iron showing weathering phenomena—Beloit, Wisconsin (gift).

WALTHER, HERBERT C., Chicago: 1 specimen each of metallic uranium, cerium, manganese, potassium and sodium; 1 specimen of elemental phosphorus; 1 specimen of ferrocerium; 1 specimen of caesium ore; 1 specimen of tantalum ore; 17 specimens of garnet (gift).

WRIGHT, ALBERT W., Warsaw, Missouri: 1 specimen of laterite—Warsaw, Missouri (gift).

YODER, PERRY, Chicago: 7 specimens of limonite concretions—Bremen, Indiana (gift).

ZIMMERMAN, EDWARD A., Chicago: 6 pearl oyster shells, 1 pearl—Takume Lagoon, Tuamotu Archipelago, French Oceania (gift).

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ALLEN, J. MORROW, Biloxi, Mississippi: 3 frogs, 7 salamanders, 9 snakes—Europe and Bolivia (exchange).

AMERICAN MUSEUM OF NATURAL HISTORY, New York: 1 bat with skull—Las Quiguas, Venezuela (exchange); 6 bees—United States (gift).

AUCKLAND INSTITUTE AND MUSEUM, Auckland, New Zealand: 3 frogs, 6 lizards—New Zealand (exchange).

BAJALIS, JOHN, Chicago: 1 spider, 1 bug—Monee, Illinois (gift).

BENESH, BERNARD, Chicago: 12 beetles—United States, Canada, Costa Rica and Australia (gift).

BISHOP MUSEUM, BERNICE PAUHI, Honolulu, Hawaii: 65 lizards—Marquesas Islands (exchange).

BOHMER, DR. OLAV, Chicago: 1 pair of mounted crossbills—Oslo, Norway (gift).

BOND, FRED, Deerfield, Illinois: 1 tiger salamander—Highland Park, Illinois (gift).

BOULTON, RUDYERD, Chicago: 17 bird skeletons—Michigan, Wisconsin, Illinois; 4 bird skins—Illinois; 8 nestling birds in alcohol—Illinois (gift).

BRANDER, DUNBAR, Elgin, Scotland: 1 red-shank, 1 snipe, 1 shelduck—Elgin, Scotland (gift).

BRANNEN, WILLIAM, Chicago: 1 ring-necked snake—Clifty Falls Park, Indiana (gift).

BRITISH MUSEUM (NATURAL HISTORY), London, England: 411 mammal skins and skulls—French Indo-China (exchange).

BRODKORB, PIERCE, Montpelier, Idaho: 4 mammal skins and skulls, 1 white-crowned sparrow—Idaho (gift).

BRUNDAGE, EDWARD, JR., Lake Forest, Illinois: 120 insects—Illinois, Michigan and North Carolina (gift).

BURT, DR. CHARLES E., Winfield, Kansas: 2 frogs, 6 lizards, 11 snakes—various localities (gift).

CALIFORNIA INSTITUTE OF TECHNOLOGY, Pasadena, California: 2 bats—Lower California, Mexico (exchange).

CARIBBEAN BIOLOGICAL LABORATORIES, Biloxi, Mississippi: 4 lizards, 1 snake—Buena Vista, Bolivia (exchange).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 4 bats—Central and South America (exchange).

CASCARD, BEN, Chicago: 1 scorpion, 1 millipede, 1 centipede, 1 wasp, 11 beetles—Riverside County, California (gift).

CHICAGO ACADEMY OF SCIENCES, Chicago: 1 gannet skin—Quebec, Canada (gift).

CIEPIELA, LEON, Chicago: 1 tarantula—Chicago (gift).

CLARK, MISS EMILY A., Wushishi, Nigeria: 1 snake and 2 heads—Wushishi, Nigeria (gift).

COCKERELL, PROFESSOR T. D. A., Boulder, Colorado: 18 bees, 11 shells—various localities (gift).

CONOVER, BOARDMAN, Chicago: 6 bird skins, 16 bird skeletons—various localities (gift); 15 bird skins—various localities (exchange).

CONOVER, MISS HELEN, Waukegan, Illinois: 1 fox squirrel skin—Woodstock, Illinois (gift).

COURSEN, C. B., Chicago: 5 nestling birds in alcohol—Chicago (gift).

CRAMER, MISS BERTHA, Highland Park, Illinois: 1 old squaw duck skin—Highland Park, Illinois (gift).

CRANE, CORNELIUS, Chicago: 14 water color paintings made on Crane Pacific Expedition (gift).

CUTTING, C. SUYDAM, New York: 540 insects—Burma and Tibet (gift).

DANFORTH, DR. STUART, Mayaguez, Puerto Rico: 15 toads, 56 frogs, 62 lizards—Santa Lucia, West Indies (gift).

DAVIS, D. DWIGHT, Naperville, Illinois: 2 porcupine skins and skulls, 1 shrew skeleton, 2 bird skeletons, 2 snakes, 5 turtles—Illinois (gift).

DELACOUR, JEAN, Clères, France: 2 squirrels, 1 tree shrew—French Indo-China (gift).

DERBY, WILLIAM B., Chicago: 19 mounted birds (gift).

ELM PLACE SCHOOL, Highland Park, Illinois: 1 bird skeleton (gift).

ERWIN, RICHARD P., Boise City, Idaho: 2 toads, 23 frogs, 45 lizards—Idaho (exchange).

EYMAN, FRANK H., Chicago: 2 young pickerel—Chippewa River, Wisconsin (gift).

FAULK, MARTY, Chicago: 1 diamond-back rattlesnake—Crane, Texas (gift).

FIELD, HENRY, Chicago: 6 European moles—Leicestershire, England; 4 bird skins—British Somaliland; 4 bats, 1 mouse, 5 snakes, 34 lizards, 1 millipede, 1 centipede, 2 scorpions, 1 solpugid—Arabia (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Emmet R. Blake (Mandel-Field Museum Zoological Expedition to Venezuela): 37 mammal skins and skulls, 882 birds, 36 frogs, 45 lizards, 11 snakes, 4 eels—Venezuela.

Collected by Llewelyn Williams (Marshall Field Botanical Expedition to the Amazon, 1929): 1 wasp and nest—Brazil.

Collected by Jean Delacour (Marshall Field Indo-Chinese Expedition): 219 mammal skins and skulls, 2,008 birds—French Indo-China.

Collected by Dr. S. E. Meek and S. F. Hildebrand (Smithsonian Biological Survey of the Canal Zone): 404 amphibians and reptiles—Panama.

Collected by John W. Moyer: 1 pheasant, 3 bird skeletons—Illinois.

Collected by Bryan Patterson and Thomas J. Newbill, Jr. (Expedition to Colorado, 1932): 2 snakes, 150 insects—Colorado.

Collected by Floyd T. Smith (Marshall Field Zoological Expedition to China): 3,081 mammal skins and skulls, 1,489 birds, 1,177 frogs and lizards, 159 snakes, 15 turtles, 836 fishes, 101 invertebrates—China.

Collected by Third Asiatic Expedition of American Museum of Natural History with Field Museum cooperating: 133 mammal skins and skulls, 1 mammal skin with skeleton—China.

Collected by Arthur S. Vernay, Herbert Lang, and Allan Chapman (Vernay-Lang Kalahari Expedition): 704 mammals, 1,523 birds, 363 toads and frogs, 622 lizards, 118 snakes, 38 turtles, 4 crocodiles, 1,990 crustaceans—South Africa.

Collected by Walter A. Weber, Karl P. Schmidt, and Dr. A. W. Herre (Cornelius Crane Pacific Expedition): 7 birds' eggs, 83 fishes, 234 insects—East Indies, Fiji Islands, and Waigiu Island.

Collected by A. B. Wolcott: 28 insects—Indiana.

Purchases: 5 caribou skins with skulls—Alaska; 5 mammal skins with skulls—Australia; 14 mammal skins with skulls, 3 skeletons, 3 snakes—Brazil; 34 small mammals—China; 4 small mammals with skulls—Costa Rica and Honduras; 6 newts, 3 frogs, 1 glass snake, 4 snakes—Europe; 10 small mammals with skulls—Russia.

FLEETWOOD, RAYMOND J., Kurtz, Indiana: 1 short-tailed shrew skeleton—Kurtz, Indiana (gift).

FORK, MISS MIRIAM, Flossmoor, Illinois: 2 milk snakes—Richton Park, Illinois (gift).

FRANZEN, ALBERT J., Chicago: 3 nestling birds in alcohol, 9 bird skeletons, 1 DeKay's snake, 4 fleas, 25 bird-lice—Illinois (gift).

GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago: 1 bat—Iowa; 1 axolotl—Mexico; 1 water snake—Kansas; 8 fishes—Michigan and Wisconsin; 20 fishes—Philippine Islands; 3 butterflies and moths—India; 5 beetles—Iowa; 1 beetle, 5 shells—Florida (gift).

GERHARD, W. J., Chicago: 188 insects—Illinois and Indiana (gift).

GLOYD, HOWARD K., Ann Arbor, Michigan: 30 frogs, 10 salamanders,

17 lizards, 47 snakes, 7 turtles—various localities (exchange).

GREEN, MORRIS M., Ardmore, Pennsylvania: 1 bog lemming—Virginia (exchange).

GREGG, CLIFFORD C., Park Ridge, Illinois: 1 red-bellied snake, 114 insects—Illinois and Wisconsin (gift).

HARRIS, W. P., Ann Arbor, Michigan: 17 small mammals with skulls—Honduras (exchange).

HAYNIE, MISSES NELLIE V. and RACHEL W., Oak Park, Illinois: 444 butterflies and moths—various countries (gift).

HECKMAN, CLARENCE, Marama, Nigeria: 1 lizard—Marama, Nigeria (gift).

HERSHKOVITZ, PHILIP, Pittsburgh, Pennsylvania: 9 bats in alcohol, 4 armadillo skins, skulls and skeletons, 3 lizards, 1 eel, 1 centipede—Texas (gift).

HINE, ASHLEY, Chicago: 1 Wilson's snipe, 1 green heron, 1 cinnamon teal, 1 cackling goose—various localities (exchange).

HOISINGTON, MRS. H. A., Olama, Cameroon: 20 Goliath beetles—southern Cameroon (gift).

HOISINGTON, HORACE, Rockford, Illinois: 26 insects—Olama, Cameroon (gift).

HUBBS, DR. CARL L., Ann Arbor, Michigan: 1 beetle—Dune Park, Indiana (gift).

HUIDEKOPER, WALLIS, Twodot, Montana: 1 American bison skin and skull—Twodot, Montana (gift).

HULL, CLEMENT, Salem, Ohio: 1 hairy-tailed mole—Salem, Ohio (gift).

JENSEN, J. L., Chicago: 1 starling—Jutland, Denmark (gift).

KELMAN, JAMES, Chicago: 1 prairie mole—Chicago (gift).

KERRINS, DON, Chicago: 1 red-tailed hawk skeleton—St. Charles, Illinois (gift).

LANG, HERBERT, Pretoria, South Africa: 100 mammal skins, skulls and skeletons, 62 frogs, 1 lizard, 1 scorpion—South Africa (gift); 20 birds—South Africa (exchange).

LAYBOURNE, EDGAR G., Homewood, Illinois: 1 spotted salamander—Crete, Illinois (gift).

LEIBOLD, DR. A. A., Park Ridge, Illinois: 1 northern pike—Basswood Lake, Minnesota (gift).

LEWY, DR. A. M., Chicago: 1 Blackburnian warbler—Chicago (gift).

LILJEBLAD, EMIL, Chicago: 44 insects—Illinois (gift).

LINCOLN PARK COMMISSION, Chicago: 1 orang—Chicago (gift).

LONGMAN, DR. HEBER, Brisbane, Australia: 1 Johnson's crocodile—Queensland (exchange).

MCNEILL, HENRY S., Chicago: 2 bats—Chicago (gift).

MALDE, O. G., Flossmoor, Illinois: 1 hoary bat with two young—Flossmoor, Illinois (gift).

METZGER, C. T., Chicago: 1 parrot skeleton (gift).

MOONEY, JAMES J., Highland Park, Illinois: 1 least weasel—Deerfield, Illinois; 2 small mammal skeletons, 1 starling skeleton, 2 salamanders—Highland Park, Illinois (gift).

MOORMAN, CHARLES, Chicago: 1 butterfly—Chicago (gift).

MOSBACHER, WALTER LEE, CORPORATION, New York: 4 tanned frog skins—South America (gift).

MOYER, JOHN W., Chicago: 1 wood duck—Putnam, Illinois; 1 rose-breasted cockatoo (gift).

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 3 lizards—Lower California, Mexico; 7 coral snakes, 1 turtle—various localities (exchange).

MUSSELMAN, T. E., Quincy, Illinois: 1 albino grackle—Quincy, Illinois (gift).

NEUENFELDT, E. R., Chicago: 1 albino frog—Wisconsin (gift).

NEVILLE, RUSSELL T., Kewanee, Illinois: 2 cave salamanders—Missouri (gift).

O'CONNELL, MRS. FRANK, Chicago: 1 small boa (gift).

ORTENBURGER, DR. A. I., Norman, Oklahoma: 3 frogs—Stillwater, Okla-

homa (gift); 3 frogs—various localities (exchange).

OSGOOD, DR. WILFRED H., Chicago: 3 bobwhite skins—Illinois (gift).

PAGE, W. C., Hubbard Woods, Illinois: 1 New York weasel—Glencoe, Illinois (gift).

PEARSALL, GORDON S., Batavia, Illinois: 1 nestling screech owl—Batavia, Illinois; 1 prairie mole—Muskegon, Michigan (gift).

PERKINS, R. MARLIN, St. Louis, Missouri: 1 Mexican chicken snake—Colima, Mexico (gift).

PETERS, ERHARD N., Leland, Michigan: 1 millipede—Leland, Michigan (gift).

PIRIE, JOHN T., Lake Forest, Illinois: 1 red-shouldered hawk—near Chicago (gift).

PLATH, KARL, Chicago: 4 bird skeletons—various localities (gift); 7 bird skeletons (exchange).

RINGER, MRS. HARRY L., Chicago: 8 humming bird skins—South America (gift).

ROOSEVELT, COLONEL THEODORE, Manila, Philippine Islands: 999 shells—Philippine Islands (gift).

ROSENBERG, W. F. H., London, England: 23 bird skins—Angola, Africa; 5 bird skins—East Africa and Madagascar; 28 bird skins—various localities (exchange).

SAEGER, CAPTAIN FRED G., Miami, Florida: 1 large green moray—near Miami, Florida (gift).

SAER, JOSÉ, Barquisimeto, Venezuela: 42 insects—near Barquisimeto, Venezuela (gift).

SANBORN, COLIN C., Highland Park, Illinois: 1 red-shouldered hawk—Highland Park; 2 bluebird skeletons (gift).

SCHENCK, S. Z., Chicago: 1 king rail skin—Illinois (gift).

SCHMIDT, F. J. W., Madison, Wisconsin: 9 frogs, 4 lizards, 7 snakes—Wisconsin (gift).

SELLA, EMIL, Chicago: 1 roach—Chicago (gift).

SHEDD, JOHN G., AQUARIUM, Chicago: 1 manatee, 1 hawkbill turtle skeleton, 1 albino short-nosed gar—various localities; 1 albino mud-puppy—Oshkosh, Wisconsin; 1 lion fish—Samoa; 1 wrymouth—Maine; 1 wrasse (gift).

SIMPSON, JAMES, Chicago: 2 mounted black cock, 2 red grouse, 2 gray partridges—Scotland; 1 Indian markhor skin and skull—India (gift).

SIMPSON, JOHN M., and ARMOUR, A. WATSON, III, Chicago: 3 topi skins and skulls, 3 gnu skins and skulls—Tanganyika, Africa (gift).

SPERRY, CHARLES C., Denver, Colorado: 1 lizard—Paradox Valley, Colorado (gift).

STEWART, Q., Chicago: 1 timber rattlesnake—West Virginia (gift).

STOKES, MISS JESSIE, Chicago: 3 young chimney swifts and nest—Henry, Illinois (gift).

STROHECKER, DR. H. F., Macon, Georgia: 30 grasshoppers, 4 katydids—Macon, Georgia (gift).

STURGIS, MRS. ELIZABETH H., Lake Forest, Illinois: 32 mounted humming birds and case—South America (gift).

THOMPSON, GEORGE, Chicago: 1 salamander—Hebron, Indiana (gift).

THOMPSON, J. ERIC, Chicago: 1 silver-haired bat skeleton—Chicago (gift).

THOMPSON, COLONEL LEWIS S., Red Bank, New Jersey: 10 fishes—Florida (gift).

THOMPSON, STUART L., Toronto, Canada: 4 bugs, 100 beetles—Toronto, Canada (gift).

THOMPSON, W. H., Chicago: 1 American bittern skeleton—Chicago (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 2 flies—Smith River, California (exchange).

UNIVERSITY OF CHICAGO, Chicago: 12 birds in alcohol—Galapagos Islands; 2 caecilians, 26 frogs, 27 turtles, 35 snakes, 279 lizards, 1 sphenodon, 37 fishes—various localities; 1 centipede—Arkalon, Kansas (gift).

WALKER, WILLIAM, Chicago: 2 prairie rattlesnakes—Benton Harbor, Michigan (gift).

WATKINS, MISS IRENE, Wushishi, Nigeria: 1 nerve-winged insect—Bauchi Plateau, Nigeria (gift).

WEBER, WALTER A., Highland Park, Illinois: 2 bird skeletons—Illinois (gift).

WEED, ALFRED C., Chicago: 34 snakes, 1 butterfly—Chicago (gift).

WERNER, DR. FRANZ, Vienna, Austria: 1 African dwarf crocodile—Togo, Africa (exchange).

WILD, A. C., Chicago: 1 butterfly—Beach, Illinois (gift).

WOLCOTT, ALBERT B., Downers Grove, Illinois: 194 insects—Illinois (gift).

WOLFE, CAPTAIN L. R., Chicago: 24 nestling birds in alcohol—Illinois (gift).

WONDER, FRANK C., Chicago: 4 bird skeletons—Fox Lake, Illinois (gift).

WOOD, JAMES H., Ann Arbor, Michigan: 1 copperhead—Michigan (gift).

ZIMMERMAN, EDWARD A., Chicago: 10 corals, 3 shells—Tuamotu Archipelago, French Oceania (gift).

RAYMOND FOUNDATION—ACCESSIONS

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILWAY COMPANY, Chicago: 199 colored slides on China (permanent loan).

DEPARTMENT OF THE INTERIOR, Canada: 1 motion picture film, *The Beaver People* (permanent loan).

FIELD MUSEUM OF NATURAL HISTORY: From Division of Photography: 50 slides for lecture use.

METHODIST BOOK CONCERN, Chicago: 200 slides on various subjects (purchase).

UNITED FRUIT COMPANY, Boston: 2 motion picture films, *The Beckoning Tropics* (gift).

UNITED STATES STEEL COMPANY, New York: 1 motion picture film, *Sheet and Wire Steel* (gift).

DIVISION OF PHOTOGRAPHY—ACCESSIONS

BLASCHKE, FREDERICK, Cold Spring-on-Hudson, New York: portrait of the horse "Man o' War" (gift).

FIELD MUSEUM OF NATURAL HISTORY:
Made by Division of Photography: 10,088 prints, 1,730 negatives, 84 lantern slides, 92 enlargements, and 37 transparent labels.

Developed for expeditions: 38 negatives.

Made by Bryan Patterson: 41 general views of Colorado.

Made by Floyd T. Smith: 14 rolls of film pictures, 16 film negatives, and 99 prints of views in China.

Made by L. C. Watelin: 28 negatives of excavations at Kish.

Purchases: 18 prints of scenes in ancient Egypt, from Lehnert and Landrock, Cairo, Egypt; 9 prints representing prehistoric life, from London Museum, England.

WHITE, CAPTAIN HAROLD A., New York: 32 views of landscapes and portraits of animals (gift).

LIBRARY—ACCESSIONS

List of Donors of Gifts

FOREIGN INSTITUTIONS

Botaniska Institutionen, Upsala, Sweden.

Canadian Arctic Expedition, Ottawa, Canada.

Carnegie Corporation, Union of South Africa, Johannesburg.

Corporation Museum and Art Gallery, Stoke-on-Trent, Great Britain.

Escola Polytechnica, São Paulo, Brazil.

Exploration Fund, Jerusalem, Palestine.

Fisheries Society of Japan, Tokyo.

Imperial Agricultural Experiment Station, Tokyo, Japan.

Indian Lac Research Institute, Calcutta, India.

Institut d'Ethnologie, Paris, France.

Instituto Historico e Geographico, Pará, Brazil.

Institut Scientifique de Recherches géographiques et géochimiques en Asie, Téhéran, Persia.

Lady Lever Art Gallery, Port Sunlight, Great Britain.

Marine Biologist, Colombo, Ceylon.

Ministerio de Relaciones y Culto, Buenos Aires, Argentina.

Museo Comercial, Caracas, Venezuela.

Museum and Art Gallery, Sheffield, Great Britain.

Neues Museum für darstellende und angewandte Naturkunde, Salzburg, Austria.

Queensland Forestry Service, Brisbane, Australia.

Queensland Government Mining Journal, Brisbane, Australia.

Research Grant Board, Cape Town, Africa.

Rijks Universiteit, Groningen, Netherlands.

Royal Zoological Society, Dublin, Ireland.

Scola Politehnica, Bucharest, Rumania.

Societas Phytogeographica, Kyoto, Japan.

Society for the Preservation of the Fauna of the Empire, Hertford, Great Britain.

Tokyo University of Literature and Science, Tokyo, Japan.

Travelers' Official Information Bureau, Batavia, Java.

West China Border Research Society, Chengtu, China.

Württembergischer Verein für Handelsgeographie, Stuttgart, Germany.

DOMESTIC INSTITUTIONS

Agricultural Experiment Station, Carson City, Nevada.

Agricultural Experiment Station, Manhattan, Kansas.

American Council of Learned Societies, Washington, D.C.

American Institute for Persian Arts and Archaeology, New York.

American Polish Chamber of Commerce, New York.

American Railway Development Association, Philadelphia, Pennsylvania.

American Relief Administration, Stanford University, California.

Amtorg Trading Corporation, New York.

Association for the Study of Negro Life and History, Washington, D.C.

Bingham Oceanographic Collection, New York.

Bird Banding Research Laboratory, Gates Mills, Ohio.

Black Diamond, Chicago.

Black Hills Engineer, Rapid City, South Dakota.

Brush Foundation, Cleveland, Ohio.

Carnegie Corporation of New York.

Carnegie Institution of Washington, Washington, D.C.

Chase National Bank, New York.

Century of Progress, Chicago.

Chicago Association of Commerce, Chicago.

Children's Museum, Boston, Massachusetts.

Children's Museum, Hartford, Connecticut.

Children's Museum, Indianapolis, Indiana.

Conservation Department, Albany, New York.

Cranbrook Institute of Science, Bloomfield Hills, Michigan.

Denver Art Museum, Denver, Colorado.

Department of Agriculture, Dairy and Food, St. Paul, Minnesota.

Department of Agriculture, Sacramento, California.

Department of Conservation, Springfield, Illinois.

Drew University, Madison, New Jersey.

Explorers' Society, New York.

Fogg Art Museum, Harvard University, Cambridge, Massachusetts.

Garden Club of America, New York.

General Biological Supply House, Chicago.

Geological Survey, Columbus, Ohio.

Geological Survey, Denver, Colorado.

Hawaiian Entomological Society, Honolulu, Hawaii.

Henry E. Huntington Library and Art Gallery, San Marino, California.

Historical Commission, Harrisburg, Pennsylvania.

Illinois Bell Telephone Company, Chicago.

Indiana Audubon Society, Indianapolis.

Izaak Walton League of America, Chicago.

Japanese Embassy, Washington, D.C.

Junior Society of Natural Sciences, Cincinnati, Ohio.

Kentucky University, College of Agriculture, Lexington.

Kentucky University, Department of Anthropology and Archaeology, Lexington.

Louisiana State University, Baton Rouge.

Museum Association, San Antonio, Texas.

Museum of Arts, Philadelphia, Pennsylvania.

Museum of History, Science and Art, Los Angeles, California.

Parnassus, New York.

Peabody Conservatory of Music, Baltimore, Maryland.

Perkins Institute and Massachusetts School for the Blind, Boston.

Riverside Public Library, Riverside, California.

Scientific American Publishing Company, New York.

State Bureau of Mines and Geology, Butte, Montana.

State Geological Survey, Topeka, Kansas.

Stone Publishing Company, New York.

Taylor Instrument Companies, Rochester, New York.

Topographical and Geological Survey, Harrisburg, Pennsylvania.

Union College, Schenectady, New York.

United Fruit Company, New York.

United States Industrial Chemical Company, New York.

University of Nevada, Carson City.

War Department, Engineer School Library, Washington, D.C.

Western Reserve University, Cleveland, Ohio.

World Calendar Association, New York.

INDIVIDUALS

- Altsheler, Brent, Louisville, Kentucky.
Ames, Oakes, Cambridge, Massachusetts.
Anderson, Robert Van V., Menlo Park, California.
D'Arrigo, Agatino, Rome, Italy.
Arsène, Rev. Bro. G., Las Vegas, New Mexico.
Bancroft, Dr. Helen, Oxford, England.
Barnes, R. Magoon, Lacon, Illinois.
Barnhart, Arthur, Chicago.
Bassler, Dr. Harvey, Myerstown, Pennsylvania.
Bay, Dr. J. Christian, Chicago.
Belehradec, Jan, Brünn, Czechoslovakia.
Benesh, Bernard, North Chicago, Illinois.
Benjamin, Dr. H. D., The Hague, Netherlands.
Bergdolt, Ernst, Munich, Germany.
Boerschmann, Ernst, Berlin, Germany.
Boetticher, Hans v., Coburg, Germany.
Bull, Norris L., Hartford, Connecticut.
Burrill, A. C., Jefferson City, Missouri.
Conover, Boardman, Chicago.
Cornell, Margaret, Chicago.
Davis, D. Dwight, Naperville, Illinois.
Dreyer, T. F., Cape Town, South Africa.
Eckstorm, Mrs. F. H., Brewer, Maine.
Erwin, Arthur T., Ames, Iowa.
Farrington, Oliver C., Chicago.
Farwell, Oliver A., Detroit, Michigan.
Fedtschenko, Boris A., Leningrad, U.S.S.R.
Ferguson, John C., Peiping, China.
Field, Henry, Chicago.
Field, Stanley, Chicago.
Fligelman, Frieda, Paris, France.
Frank, George M., Chengtu, China.
Frankenberg, Dr. G. v., Braunschweig, Germany.
Frost, S. W., Arendtsville, Pennsylvania.
Gerhard, William J., Chicago.
Geyer, Eberhard, Vienna, Austria.
Ginsburg, Isaac, Washington, D.C.
Gloyd, Howard K., Ann Arbor, Michigan.
Goodwin, A. J. H., Cape Town, Africa.
Gordon, Bertha F., Chicago.
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 Brown, A. Wilder
 Brown, Benjamin R.
 Brown, Charles A.
 Brown, Christy
 Brown, Dr. Edward M.
 Brown, Mrs. George
 Dewes
 Brown, Mrs. Henry
 Temple
 Brown, John T.
 Brown, Scott
 Bruckner, William T.
 Brugman, John J.
 Brundage, Avery
 Brunswick, Larry
 Bryant, John J., Jr.
 Buck, Guy R.
 Buck, Mrs. Lillian B.
 Buck, Nelson Leroy
 Bucklin, Mrs. Vail R.
 Budlong, Joseph J.
 Buehler, H. L.
 Buettner, Walter J.
 Buffington, Mrs.
 Margaret A.
 Buhmann, Gilbert G.
 Bullock, Carl C.
 Bullock, Mrs. James E.
 Bunge, Mrs. Albert J.
 Burgess, Charles F.
 Burgstreser, Newton
- Burgweger, Mrs. Meta
 Dewes
 Burke, Mrs. Lawrence N.
 Burke, Webster H.
 Burkholder, Dr. J. F.
 Burnham, Mrs. Edward
 Burns, Mrs. Randall W.
 Burrows, Mrs. W. F.
 Burry, Mrs. William
 Burtch, Almon
 Burton, Mrs. Ernest D.
 Bush, Mrs. Lionel E.
 Bush, Mrs. William H.
 Butler, Mrs. Hermon B.
 Butler, J. Fred
 Butler, John M.
 Butler, Paul
 Butz, Herbert R.
 Butz, Robert O.
 Butz, Theodore C.
 Butzow, Mrs. Robert C.
 Buzzell, Edgar A.
 Byfield, Dr. Albert H.
 Byrne, Miss Margaret H.
- Cable, J. E.
 Cahn, Dr. Alvin R.
 Cahn, Bertram J.
 Cahn, Morton D.
 Caldwell, C. D.
 Caldwell, Mrs. F. C.
 Cameron, Dr. Dan U.
 Cameron, John M.
 Cameron, Will J.
 Camp, Mrs. Arthur Royce
 Campbell, Delwin M.
 Campbell, Herbert J.
 Canby, Caleb H., Jr.
 Capes, Lawrence R.
 Capps, Dr. Joseph A.
 Carlin, Leo J.
 Carney, William Roy
 Caron, O. J.
 Carpenter, Mrs. Benjamin
 Carpenter, Frederic Ives
 Carpenter, Mrs. George A.
 Carpenter, George Sturges
 Carpenter, Hubbard
 Carpenter, Miss Rosalie
 Sturges
 Carpenter, W. W. S.
 Carqueville, Mrs. A. R.
 Carr, Mrs. Clyde M.
 Carroll, John A.
 Carry, Joseph C.
 Carter, Mrs. Armistead B.
 Carton, Alfred T.
 Cary, Dr. Eugene
 Cary, Dr. Frank
 Case, Elmer G.
 Casey, Mrs. James J.
 Casselberry, Mrs. William
 Evans, Sr.

- Cassels, Edwin H.
 Castle, Alfred C.
 Castruccio, Giuseppe
 Cates, Dudley
 Cernoch, Frank
 Chadwick, Charles H.
 Chandler, Henry P.
 Chapin, Henry Kent
 Chapin, Homer C.
 Chapman, Arthur E.
 Chappell, Mrs. Charles H.
 Chase, Frank D.
 Chavis, Dr. Samuel W.
 Cheever, Mrs. Arline V.
 Cheney, Dr. Henry W.
 Chisholm, George D.
 Chritton, George A.
 Churan, Charles A.
 Clark, Ainsworth W.
 Clark, Miss Alice Keep
 Clark, Charles V.
 Clark, Miss Dorothy S.
 Clark, Mrs. Edward S.
 Clark, Edwin H.
 Clark, Dr. Peter S.
 Clarke, Charles F.
 Clarke, Fred L.
 Clarke, Harley L.
 Clarke, Henry
 Clas, Miss Mary Louise
 Clemen, Dr. Rudolf A.
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 Clifford, F. J.
 Clinch, Duncan L.
 Clough, William H.
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 Clow, William E., Jr.
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 Cohen, Mrs. L. Lewis
 Colburn, Frederick S.
 Colby, Mrs. George E.
 Coldren, Clifton C.
 Coleman, Dr. George H.
 Coleman, Loring W., Jr.
 Coleman, William Ogden
 Colianni, Paul V.
 Collins, Beryl B.
 Collis, Harry J.
 Colvin, Mrs. William H.
 Colwell, Clyde C.
 Compton, D. M.
 Compton, Frank E.
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 Conger, Miss Cornelia
 Connell, P. G.
 Connors, Harry
 Connor, Mrs. Clara A.
 Connor, Frank H.
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 Cook, Mrs. David S., Jr.
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 Cooke, Leslie L.
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 Coolidge, E. Channing
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 Coonley, John Stuart, Jr.
 Coonley, Prentiss L.
 Cooper, Samuel
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 Cosford, Thomas H.
 Coston, James E.
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 Jennie E.
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 Cox, James A.
 Cox, James C.
 Cox, Mrs. Rensselaer W.
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 Crego, Mrs. Dominica S.
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 Crilly, Edgar
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 Cromwell, Miss Juliette
 Clara
 Cross, Henry H.
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 Cuneo, John F.
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 Howard J.
 Cunningham, John T.
 Curran, Harry R.
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 Curtis, Miss Frances H.
 Curtis, John F. L.
 Cusack, Harold
 Cushing, John F.
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 Daily, Richard
 Dakin, Dr. Frank C.
 Daley, Harry C.
 Dammann, J. F.
 D'Ancona, Edward N.
 Danforth, Dr. William C.
 Daniels, H. L.
 Dantzig, Leonard P.
 Danz, Charles A.
 Darrow, William W.
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 Daughaday, C. Colton
 Davey, Mrs. Bruce C.
 David, Dr. Vernon C.
 Davidson, Dr.
 Alexander L.
 Davidson, Miss Mary E.
 Davies, Marshall
 Davies, Warren T.
 Davis, Abel
 Davis, Arthur
 Davis, C. S.
 Davis, Dr. Carl B.
 Davis, Frank S.
 Davis, Fred M.
 Davis, James
 Davis, Dr. Loyal
 Davis, Dr. Nathan S., III
 Davis, Ralph
 Dawes, E. L.
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 Deagan, John C.
 Deahl, Uriah S.
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 DeCosta, Lewis M.
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 Dee, Thomas J.
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 Degen, David
 DeGolyer, Robert S.
 DeKoven, Mrs. John
 DeLee, Dr. Joseph B.
 DeLemon, H. R.
 Deming, Everett G.
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 Denman, Mrs. Burt J.
 Dennehy, Thomas C.
 Dennis, Charles H.
 Dent, George C.
 Deutsch, Joseph
 Deutsch, Mrs. Percy L.
 Deutsch, Samuel
 DeVries, David
 DeVries, Peter
 Dewes, Rudolph Peter
 Dewey, Albert B., Sr.
 Dick, Albert B., Jr.
 Dick, Elmer J.
 Dick, Mrs. Homer T.
 Dickey, Roy
 Dickinson, F. R.
 Dickinson, Robert B.
 Dickinson, Theodore
 Diestel, Mrs. Herman
 Dikeman, Aaron Butler
 Dillon, Miss Hester May
 Dimick, Miss Elizabeth
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 Dixon, William Warren
 Dobson, George
 Doctor, Isidor

- Dodge, Mrs. Paul C.
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 Donnelley, Miss Naomi
 Donnelley, Mrs. R. R.
 Donnelly, Frank
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 Douglass, Kingman
 Douglass, W. A.
 Dreiske, George J.
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 Dunham, Miss Lucy Belle
 Dunham, Robert J.
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 Dyche, William A.
- Easterberg, C. J.
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 Eckhart, Percy B.
 Eckstein, H. G.
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 Eddy, Thomas H.
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 Edwards, Kenneth P.
 Egan, William B.
 Ehrman, Edwin H.
 Eiger, Oscar S.
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 Eisendrath, Robert M.
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 Eisenschiml, Mrs. Otto
 Eisenstaedt, Harry
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- Elliott, Dr. Charles A.
 Elliott, Frank R.
 Ellis, Howard
 Elting, Howard
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 Ericson, Melvin Burton
 Ericsson, Clarence
 Ericsson, Henry
 Ericsson, Walter H.
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 Erskine, Albert DeWolf
 Etten, Henry C.
 Eustice, Alfred L.
 Evans, Mrs. Albert Thomas
 Evans, Miss Anna B.
 Evans, Mrs. David
 Evans, David J.
 Evans, Eliot H.
 Evans, Hon. Evan A.
 Ewell, C. D.
 Ewen, William R. T.
- Fabian, Francis G.
 Fabry, Herman
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 Faget, James E.
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 Falk, Lester L.
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 Farrell, Rev. Thomas F.
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 Fernald, Robert W.
 Fetzer, Wade
 Filek, August
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 Finn, Joseph M.
- Fischel, Frederic A.
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 Fisher, Walter L.
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 Flexner, Washington
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 Foreman, Edwin G., Jr.
 Foreman, Harold E.
 Foreman, Oscar G.
 Foresman, Mrs. W. Coates
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 Forgan, Robert D.
 Forman, Charles
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 Foster, Volney
 Foster, Mrs. William C.
 Fowler, Miss Elizabeth
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 Fox, Jacob Logan
 Fox, Dr. Paul C.
 Frank, Dr. Ira
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 Frankenstein, Rudolph
 Frankenstein, William B.
 Frankenthal, Dr. Lester E., Jr.
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 Freeman, Charles Y.
 Freeman, Walter W.
 Freer, Archibald E.
 French, Dudley K.
 Frenier, A. B.
 Freudenthal, G. S.
 Freund, Charles E.
 Freund, I. H.
 Frey, Charles Daniel
 Freyn, Henry J.
 Fridstein, Meyer
 Friedlander, Jacob
 Friedlich, Mrs. Herbert
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 Friedman, Mrs. Isaac K.
 Friedman, Oscar J.
 Friestedt, Arthur A.
 Frisbie, Chauncey O.

- Frost, Mrs. Charles
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 Patterson
 Fuller, Judson M.
 Fuller, Leroy W.
 Furry, William S.
 Furst, Eduard A.
- Gabathuler, Miss Juanita
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 Gaertner, William
 Gale, G. Whittier
 Gale, Henry G.
 Gall, Charles H.
 Gall, Harry T.
 Gallagher, Vincent G.
 Gallup, Rockwell
 Galt, Mrs. A. T.
 Galvin, William A.
 Gann, David B.
 Gansbergen, Mrs. F. H.
 Garard, Elzy A.
 Garcia, Jose
 Garden, Hugh M. G.
 Gardner, Addison L.
 Gardner, Addison L., Jr.
 Gardner, Henry A.
 Gardner, Mrs. James P.
 Garner, Harry J.
 Garrison, Dr. Lester E.
 Gary, Fred Elbert
 Gately, Ralph M.
 Gates, Philetus W.
 Gawne, Miss Clara J.
 Gay, Rev. A. Royal
 Gaylord, Duane W.
 Gear, H. B.
 Gehl, Dr. W. H.
 Gehrman, Felix
 George, Mrs. Albert B.
 George, Fred W.
 Gerding, R. W.
 Gerngross, Mrs. Leo
 Gerrity, Thomas
 Gerts, Walter S.
 Gettelman, Mrs. Sidney H.
 Getzoff, E. B.
 Gibbs, Dr. John Phillip
 Gibson, Dr. Stanley
 Gielow, Walter C.
 Giffert, Mrs. William
 Gilbert, Miss Clara C.
 Gilchrist, Mrs. John F.
 Gilchrist, Mrs. William
 Albert
 Giles, Carl C.
 Gillette, Mrs. Ellen D.
 Gillman, Morris
 Gillson, Louis K.
 Ginther, Miss Minnie C.
 Girard, Mrs. Anna
- Glaescher, Mrs. G. W.
 Glaser, Edward L.
 Glasgow, H. A.
 Glasner, Rudolph W.
 Glenn, Mrs. J. M.
 Godehn, Paul M.
 Goedke, Charles F.
 Goehst, Mrs. John Henry
 Goes, Mrs. Arthur A.
 Golden, Dr. Isaac J. K.
 Goldenberg, Sidney D.
 Goldfine, Dr. Ascher H. C.
 Goldstine, Dr. Mark T.
 Goldy, Walter I.
 Goode, Mrs. Rowland T.
 Gooden, G. E.
 Goodkind, Dr. Maurice L.
 Goodman, Benedict K.
 Goodman, Mrs. Herbert E.
 Goodman, W. J.
 Goodman, William E.
 Goodrow, William
 Goodwin, Hon. Clarence
 Norton
 Goodwin, George S.
 Gordon, Harold J.
 Gordon, Mrs. Robert D.
 Gorham, Sidney Smith
 Gorman, George E.
 Gorrell, Mrs. Warren
 Gradle, Dr. Harry S.
 Grady, Dr. Grover Q.
 Graf, Robert J.
 Graff, Oscar C.
 Graham, Douglas
 Graham, E. V.
 Graham, Miss
 Margaret H.
 Gramm, Mrs. Helen
 Granger, Alfred
 Grant, Alexander R.
 Grant, James D.
 Grant, John G.
 Graves, Howard B.
 Gray, Mrs. Charles W.
 Gray, Rev. James M.
 Green, J. B.
 Green, Miss Mary Pomeroy
 Green, Dr. Raphael B.
 Green, Robert D.
 Green, Zola C.
 Greenberg, Andrew H.
 Greenburg, Dr. Ira E.
 Greene, Carl D.
 Greenebaum, James E.
 Greenebaum, M. E.
 Greenebaum, M. E., Jr.
 Greenlee, James A.
 Greenlee, Mrs. William
 Brooks
 Greenman, Mrs. Earl C.
 Gregory, Clifford V.
- Gregory, Stephen S., Jr.
 Gregory, Tappan
 Grey, Charles F.
 Grey, Dr. Dorothy
 Grey, Howard G.
 Griest, Mrs. Marianna L.
 Griffenhagen, Mrs.
 Edwin O.
 Griffith, E. L.
 Griffith, Melvin L.
 Griffith, Mrs. William
 Griffiths, George W.
 Grimm, Walter H.
 Griswold, Harold T.
 Grizzard, James A.
 Gronkowski, Rev. C. I.
 Groot, Cornelius J.
 Gross, Henry R.
 Grossman, Frank I.
 Grotenhuis, Mrs.
 William J.
 Grotowski, Dr. Leon
 Gruhn, Alvah V.
 Grulee, Lowry K.
 Grunow, Mrs. William C.
 Guenzel, Louis
 Guest, Ward E.
 Gulbransen, Axel G.
 Gulick, John H.
 Gundlach, Ernest T.
 Gunthorp, Walter J.
 Gwinn, William R.
- Haas, Maurice
 Haas, Dr. Raoul R.
 Hadley, Mrs. Edwin M.
 Hagen, Mrs. Daise
 Hagen, Fred J.
 Hagens, Dr. Garrett J.
 Haggard, John D.
 Hagner, Fred L.
 Haight, George I.
 Hair, T. R.
 Hajicek, Rudolph F.
 Haldeman, Walter S.
 Hale, Mrs. Samuel
 Hale, William B.
 Hall, David W.
 Hall, Edward B.
 Hall, Mrs. J. B.
 Hallmann, August F.
 Hallmann, Herman F.
 Halperin, Aaron
 Hamill, Charles H.
 Hamill, Mrs. Ernest A.
 Hamill, Robert W.
 Hamilton, Thomas B.
 Hamlin, Paul D.
 Hamm, Edward F.
 Hammerschmidt, Mrs.
 George F.
 Hammitt, Miss Frances M.

- Hammond, Thomas S.
Hand, George W.
Hanley, Henry L.
Hansen, Mrs. Carl
Hansen, Jacob W.
Harbison, L. C.
Harder, John H.
Hardie, George F.
Hardin, John H.
Harding, Charles F., Jr.
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Harding, John Cowden
Harding, Richard T.
Hardinge, Franklin
Harker, H. L.
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Harper, Alfred C.
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Harris, Gordon L.
Harris, Hayden B.
Harris, Miss Martha E.
Hart, Mrs. Herbert L.
Hart, William M.
Hartmann, A. O.
Hartshorn, Kenneth L.
Hartwell, Fred G.
Hartwig, Otto J.
Harvey, Hillman H.
Harvey, Richard M.
Harwood, Thomas W.
Haskell, Mrs. George E.
Haugan, Charles M.
Haugan, Oscar H.
Havens, Samuel M.
Hayes, Charles M.
Hayes, Harold C.
Hayes, Miss Mary E.
Haynie, Miss Rachel W.
Hays, Mrs. Arthur A.
Hazlett, Dr. William H.
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Heaney, Dr. N. Sproat
Heaton, Harry E.
Heaton, Herman C.
Heberlein, Miss
 Amanda F.
Heck, John
Heckendorf, R. A.
Hedberg, Henry E.
Heidke, Herman L.
Heiman, Marcus
Heine, Mrs. Albert
Heineman, Oscar
Heinzelman, Karl
Heinzen, Mrs. Carl
Heldmaier, Miss Marie
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Heller, Albert
Heller, John A.
Heller, Mrs. Walter E.
Hellman, George A.
Hellyer, Walter
Hemmens, Mrs. Walter P.
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Henderson, Thomas B. G.
Henkel, Frederick W.
Henley, Eugene H.
Hennings, Mrs.
 Abraham J.
Henry, Otto
Henshaw, Mrs.
 Raymond S.
Herrick, Charles E.
Herrick, Miss Louise
Herrick, Walter D.
Herron, James C.
Herron, Mrs. Ollie L.
Hershey, J. Clarence
Hertz, Mrs. Fred
Herwig, George
Herwig, William D., Jr.
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Heun, Arthur
Heverly, Earl L.
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Hibbard, Mrs. W. G.
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Higgins, John W.
Higinbotham, Harlow D.
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Hildebrand, Grant M.
Hill, Mrs. E. M.
Hill, Mrs. Lysander
Hill, William E.
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Hillebrecht, Herbert E.
Hillis, Dr. David S.
Himrod, Mrs. Frank W.
Hindman, Biscoe
Hinkle, Ross O.
Hinman, Mrs. Estelle S.
Hinrichs, Henry, Jr.
Hinsberg, Stanley K.
Hinton, E. W.
Hird, Frederick H.
Hirsch, Henry H.
Hirsch, Jacob H.
Hiscox, Morton
Histed, J. Roland
Hoelscher, Herman M.
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 Dickinson
Hoffmann, Edward
 Hempstead
Hogan, Frank
Hogan, Robert E.
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Holden, Edward A.
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Hollister, Francis H.
Holmes, George J.
Holmes, Miss Harriet F.
Holmes, Mrs. Maud G.
Holmes, William
Holmes, William N.
Holt, Miss Ellen
Homan, Miss Blossom L.
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Honsik, Mrs. James M.
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Hoover, Mrs. Fred W.
Hoover, H. Earl
Hoover, Ray P.
Hope, Alfred S.
Hopkins, Farley
Hopkins, Mrs. James M.
Hopkins, John L.
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Horner, Dr. David A.
Horner, Mrs. Maurice
 L., Jr.
Horst, Curt A.
Horton, George T.
Horton, Hiram T.
Horton, Horace B.
Hosbein, Louis H.
Hosmer, Philip B.
Hottinger, Adolph
Howard, Harold A.
Howard, Willis G.
Howe, Charles Arthur
Howe, Clinton W.
Howe, Warren D.
Howe, William G.
Howell, Albert S.
Howell, William
Howes, Frank W.
Howse, Richard
Hoyne, Frank G.
Hoyne, Thomas Temple
Hoyt, Frederick T.
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Hubbard, George W.
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Hudson, Walter L.
Hudson, William E.
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Huff, Thomas D.
Hughes, John E.
Hughes, John W.
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 Pratt
Hulbert, Mrs. Milan H.
Hultgen, Dr. Jacob F.
Hume, John T.
Huncke, Herbert S.
Huncke, Oswald W.
Hunter, Samuel M.
Hurd, N. L.
Hurley, Edward N., Jr.

- Huston, W. L.
 Huston, Ward T.
 Huszagh, R. LeRoy
 Huszagh, Ralph D.
 Hutchinson, Foye P.
 Hutchinson, John W.
 Hutchinson, Samuel S.
 Hynes, Rev. J. A.

 Ickes, Raymond
 Idelman, Bernard
 Ilg, Robert A.
 Inlander, Samuel
 Irons, Dr. Ernest E.
 Isaacs, Charles W., Jr.
 Isham, Henry P.
 Ives, Clifford E.

 Jackson, Allan
 Jackson, Archer L.
 Jackson, Arthur S.
 Jacobi, Miss Emily C.
 Jacobs, Hyman A.
 Jacobs, Julius
 Jacobs, Louis G.
 Jacobs, Siegfried T.
 Jacobson, Raphael
 Jaeger, George J., Jr.
 Jaffe, Dr. Richard
 Herman
 Jaffray, Mrs. David S., Jr.
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 James, William R.
 Jameson, Clarence W.
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 Jarchow, Charles C.
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 Jenkinson, Mrs. Arthur
 Gilbert
 Jenks, William Shippen
 Jennings, Ode D.
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 Jerger, Wilbur Joseph
 Jetzinger, David
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 John, Dr. Findley D.
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 Johnson, Alvin O.
 Johnson, Arthur L.
 Johnson, Mrs. Harley
 Alden
 Johnson, Isaac Horton
 Johnson, Joseph F.
 Johnson, Nels E.
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 Johnson, Olaf B.

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 Johnson, Ulysses G.
 Johnston, Arthur C.
 Johnston, Edward R.
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 McBean
 Johnston, Mrs. M. L.
 Johnstone, Dr. A. Ralph
 Johnstone, George A.
 Johnstone, Dr. Mary
 M. S.
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 Jones, Fred B.
 Jones, G. Herbert
 Jones, James B.
 Jones, Dr. Margaret M.
 Jones, Melvin
 Jones, Warren G.
 Joseph, Louis L.
 Joy, Guy A.
 Joyce, David G.
 Joyce, Joseph
 Judah, Noble Brandon
 Judah, Mrs. Noble
 Brandon
 Juergens, H. Paul
 Julien, Victor R.
 Junkunc, Stephen

 Kaercher, A. W.
 Kahn, Gus
 Kahn, J. Kesner
 Kahn, Louis
 Kaine, James B.
 Kane, Jerome M.
 Kaplan, Nathan D.
 Karpen, Adolph
 Karpen, Michael
 Kaspar, Otto
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 Kauffmann, Alfred
 Kavanagh, Maurice F.
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 C. L.
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 Kehl, Robert Joseph
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 Kellogg, Mrs. M. G.
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 Kempner, Harry B.
 Kempner, Stan
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 Kinsey, Robert S.
 Kintzel, Richard
 Kipp, Carl P.
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 Kitchell, Howell W.
 Kittredge, R. J.
 Kitzelman, Otto
 Klein, Arthur F.
 Klein, Henry A.
 Klein, Mrs. Samuel
 Kleinpell, Dr. Henry H.
 Kleist, Mrs. Harry
 Kleppinger, William
 H., Jr.
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 Knutson, George H.
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 Kosobud, William F.
 Kotal, John A.
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 Kovac, Stefan
 Kraber, Mrs. Fredericka
 Kraft, C. H.
 Kraft, James L.
 Kraft, Norman
 Kralovec, Emil G.
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- Lehmann, Miss
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 Albert, Jr.
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 Perry, I. Newton
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 Petersen, Jurgen
 Petersen, Dr. William F.
 Peterson, Albert
 Peterson, Alexander B.
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 Peterson, Arthur J.
 Peterson, Axel A.
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 Pierce, Paul
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 Poole, George A.
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 Randle, Guy D.
 Randle, Hanson F.
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- Rich, Edward P.
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 Roberts, John M.
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 Roberts, Mrs. Warren R.
 Roberts, William Munsell
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 Roche, Miss Emily
 Rockwell, Harold H.
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 Rodgers, Dr. David C.
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 Rogers, Bernard F., Jr.
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 Rosenthal, Kurt
 Rosenthal, Lessing
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- Ross, Walter S.
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 Sargent, Ralph
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 Seng, V. J.
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- Elmer, Miss Lulu Shepard
 Elmslie, George G.
 Elting, Victor
 Emery, Mrs. Fred A.
 Emery, William H.
 Emig, Howard A.
 Engelhart, Frank C.
 Englander, Mrs. Marcelite
 English, John J.
 Engstrom, Harold
 Erd, Arthur A.
 Erickson, Elmer
 Erickson, H. E.
 Ericsson, Dewey A.
 Esdohr, F. H.
 Espenshade, Mrs. E. B.
 Estes, Clarence E.
 Ettelson, Mrs. Samuel A.
 Eulass, Elmer A.
 Evans, Mrs. Arthur T.
 Evans, Floyd Butler
 Evans, Mrs. Timothy
 Wallace
 Everett, Edward W.
 Ewing, Davis

 Fabrice, Edward H.
 Fahrenfeld, Mrs. Fred W.
 Falls, Dr. S. H.
 Fani, Father Charles
 Fanning, Charles G.
 Farquharson, William J.
 Farrell, William W.
 Farrier, Clarence W.
 Farwell, Albert D.
 Farwell, Edward P.
 Farwell, Stanley P.
 Faulkner, Dr. Louis
 Felsenthal, Herman
 Fenton, J. R.
 Fetzer, Wade, Jr.
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 Feuchtwanger, Mrs.
 Joseph
 Field, Heman H.
 Field, Henry
 Field, Mrs. J. A.
 Field, Mrs. Wentworth G.
 Fiery, E. Irving
 Findlay, Dr. Ephraim K.
 Finigan, Thomas
 Fink, Mrs. Arthur G.
 Fischer, Mrs. Charles W.
 Fischrupp, George
 Fitch, Thomas
 Fitzpatrick, Mrs. H. P.
 Fitzpatrick, James R.
 Fitzpatrick, Mrs. T. F.
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 Flaherty, Joseph F.
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 Fleming, Edward J.
 Fleming, Mrs. Joseph B.
 Fletcher, Mrs. R. V.
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 Fordyce, Mrs. R. L.
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 Forrest, Maulsby
 Forrester, Mrs. W. W.
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 Fortelka, Dr. Frank L.
 Fortune, John L.
 Fowler, Gordon F.
 Fowler, Harold A.
 Fox, Hugo E.
 Fox, Professor Philip
 Foy, John J.
 Frame, C. L.
 Frank, Mrs. Arthur A.
 Frank, John M.
 Frank, Samuel I.
 Franklin, Egington
 Fraser, Norman D.
 Frazee, Seward C.
 Frazer, Mrs. G. E.
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 Clarence L.
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 Freeman, Victor E.
 Freiler, Abraham J.
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 Frenzel, Mrs. Henry
 Freund, Erwin O.
 Fried, Harry N.
 Friedberg, Mrs. Stanton
 Frieder, Edward N.
 Friedrichs, Mrs. Edith E.
 Friend, Mrs. Alexander
 Friend, Oscar F.
 Froebe, Miss Edith
 Fucik, E. J.
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 Fuller, Dr. George
 Damon
 Funk, Mrs. C. S.
 Funk, G. W.

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 Gale, Abram
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 Galloway, Dr. Charles E.
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 Gano, David R.
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 Gaul, H. J.
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 Hessert, Gustav
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 Jackson, William F.
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 Jacobs, Nate
 Jacobs, Walter H.
 Jacobs, Whipple
 Jacobson, Egbert G.
 Jacobson, Harry
 Jacobus, Graham B.
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 Jewett, Miss Josephine J.
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 Johnson, Edmund G.
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 Gray
 Johnson, Evan
 Johnson, Frank
 Johnson, Harry T.
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 Johnson, Mrs. Lorena M.
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 Johnston, W. Robert
 Johnstone, Mrs. Bruce
- Jones, Mrs. C. A.
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 Jones, Homer D., Jr.
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 Jourdan, Al
 Joy, James A.
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 Judd, Mrs. Robert
 Augustine
 Judson, Clay
 Juergens, Miss Anna
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- Kaempfer, Fred
 Kanavel, Dr. Allen B.
 Kann, Max M.
 Kannally, Michael V.
 Kanter, Dr. Aaron E.
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 Karpen, Solomon
 Karstrom, J. O.
 Kass, Peter
 Kaufmann, Dr. Gustav L.
 Kaye, Joseph M.
 Keefe, Mrs. George I.
 Keene, William J.
 Keig, Marshall E.
 Kelley, Gordon P.
 Kellogg, James G.
 Kelly, Frank S.
 Kelly, Mrs. Harry L.
 Kelly, John Hayes
 Kemp, Philip G.
 Kemper, Miss Hilda M.
 Kenly, Mrs. William K.
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 Kennedy, Mrs. Edward A.
 Kennedy, Lesley
 Kennedy, Mrs. Robert E.
 Kent, Henry R.
 Kenyon, Mrs. E. F.
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 Keppner, H. W.
 Kerwin, Edward M.
 Kestnbaum, Meyer
 Keyser, Charles F.
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 King, David E.
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 King, Mrs. Nelora S.
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 King, William Henry, Jr.
 Kiper, Henry

- Kiplinger, Walter M.
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 Kirkpatrick, Donald
 KixMiller, Mrs. William
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 Klein, Dr. David
 Klein, Fred W.
 Klein, Michael B.
 Kleinschmidt, Edward
 Klenha, Joseph Z.
 Kline, William S.
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 Koch, Raymond J.
 Koch, Dr. Sumner
 Koenig, Fred A.
 Koenig, George W.
 Koenig, Otto N.
 Koepke, E. E.
 Koepke, Frank J.
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 Kohn, Mrs. Frances J.
 Kohn, Mrs. George G.
 Kohn, Oscar
 Kohout, Joseph, Jr.
 Kohr, Arthur G.
 Kolstad, Odin T.
 Kort, George
 Kovoloff, Dan
 Kraft, Dr. Oscar H.
 Krebs, Charles E.
 Kremer, C. E.
 Krensky, A. Morris
 Krum, Howard L.
 Kuehn, Miss Katherine
 Kuehn, Oswald L.
 Kullman, F. H., Jr.
 Kunstadter, Sigmund
 Kuppenheimer, Mrs.
 Jonas
 Kurtz, George R.

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 Laffin, Charles W.
 Laird, Robert S.
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 Lalley, Henry J.
 Lamont, John A.
 Lane, Mrs. Eben
 Lane, Mrs. John F.
 Lane, Steven M.
 Langdon, Buel A.

 Lange, A. G.
 Lange, Miss Clara L.
 Lanius, James C.
 Lansing, A. J.
 Laramore, Florian Eugene
 Larkin, William J.
 Larsen, Gustave R.
 Larson, Miss Ida
 Larson, Simon P.
 Lasch, Charles F.
 Lashinsky, Nathan N.
 Latham, Carl Ray
 Lathrop, Frederick A.
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 Laufer, Mrs. Berthold
 Lavidge, Arthur W.
 Lavin, H. T.
 Law, M. A.
 Lawrence, Miss Elma V.
 Lawton, Samuel T.
 Lazear, Dr. Davies
 Lazelle, L. L.
 Leach, George T.
 Leal, Miss Rose B.
 Lechler, E. Fred
 Lee, Edward T.
 Lee, Mrs. Joseph Edgar
 Lee, Mrs. W. George
 Lees, William
 Leete, Robert S.
 Leigh, Maurice
 Leight, Edward A.
 Leiser, Robert S.
 Leitz, Mrs. Robert
 Leitzell, Mrs. Samuel N.
 Leman, Mrs. W. T.
 Lenfestey, Mrs. J. R.
 Lenz, Mrs. George
 LeSage, Rev. John J.
 Leslie, John Woodworth
 Lesman, Mrs. George H.
 Lester, Albert G.
 Lettermann, A. L.
 Levett, Dr. John
 Levey, Clarence J.
 Levin, Louis
 Levis, John M.
 Levy, Mrs. Arthur K.
 LeWald, W. B.
 Lewis, Miss Eva
 Lewis, Mrs. Harry G.
 Lewis, Mrs. Walker O.
 L'Hommedieu, Arthur
 Lichtenstein, Walter
 Liddle, Charles A.
 Lindley, Mrs. Fred W.
 Linkman, Louis B.
 Linn, Mrs. James W.
 Linn, Mrs. W. Scott
 Lipman, Abraham
 Lippert, Aloysius C.
 List, Paulus

 Little, Charles G.
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 Lloyd, Mrs. Grace
 Chapman
 Lobdell, Harry H.
 Locke, Richard F.
 Lockwood, David W.
 Lodge, Fred S.
 Loeb, Arthur A.
 Loeb, Mrs. Estelle T.
 Loeb, Dr. Ludwig M.
 Loehr, Karl C.
 Loewenherz, Emanuel
 Logan, Frank G.
 Logan, Frederic D.
 Logan, L. B.
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 Lowenthal, Leo B.
 Lowry, Mrs. Leslie E.
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 Lusk, Ross C.
 Lutzow, Fred H.
 Lydston, Mrs. G. Frank

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 Macfarland, Lanning
 Macfarlane, Wilbert E.
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 MacGregor, Mrs. John
 David
 Mackenzie, Mrs. G. S.
 Mackworth, Mrs. Isabel
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 MacLeod, Dr. S. B.
 Macmillan, Mrs. L. W.
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 McLaughlin, Frank L.
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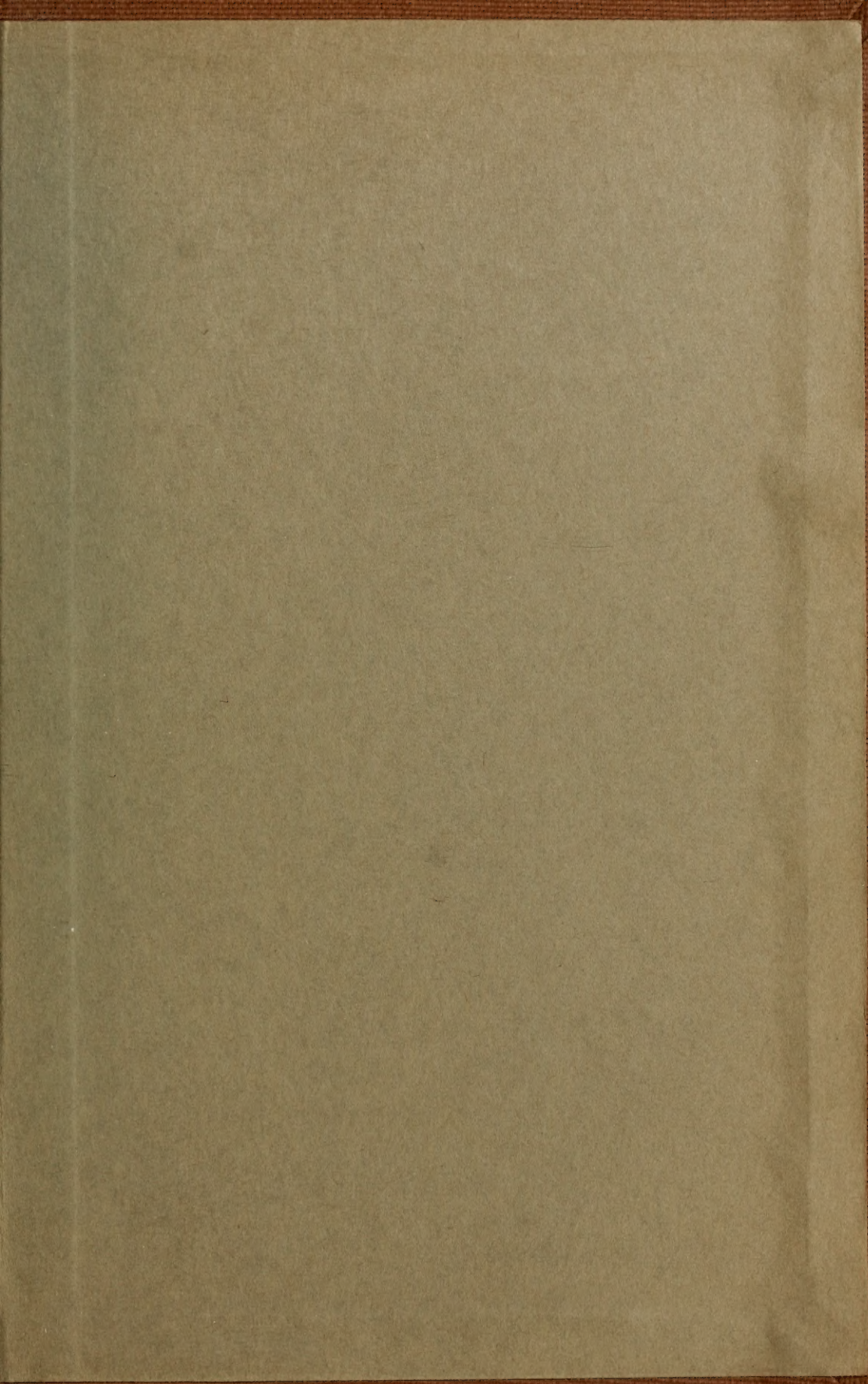
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